

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of

Authorizing Permissive Use of the “Next
Generation” Broadcast Television Standard

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GN Docket No. 16-142

COMMENTS OF ONE MEDIA, LLC

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EXECUTIVE SUMMARY

This proceeding is noteworthy in that the essential questions raised are not “*whether*” to adopt this remarkably advanced technical ability, but rather “*how*” to deploy a new broadcasting platform quickly with minimum oversight and maximum flexibility. ONE Media, LLC (“**ONE Media**”) wholeheartedly agrees with this predicate, and asks the Commission to open the gates and let us meet the evolving needs of consumers and broadcasters by approving a next generation transmission standard that permits innovation, service improvement and spectrum efficiency.

In crafting this new standard (“**Next Generation**,” “**Next Gen**” or “**ATSC 3.0**”), the Advanced Television Systems Committee’s (“**ATSC**”) fundamental mission was to devise a set of technologies and procedures capable of evolving and – significantly – not limited to any one “silo” of content distribution. The new standard’s Internet Protocol (“**IP**”) foundation fundamentally enables broadcasters to claim a significant position now in the competitive wireless distribution world. As distribution of digital media, and digital video in particular, becomes an increasingly greater share of all wireless communications traffic, an IP-based broadcast transmission stage will place broadcasters on a relatively equal footing with other distribution platforms and introduce new features and capabilities that other video distribution platforms lack. Providers of digital content, from video programmers seeking alternative distribution platforms, to auto manufacturers providing 3-D mapping and telematics data for driverless cars, to digital signage providers with high volume data transport needs, will have another competitive option from broadcasters. From a widely-held national policy perspective, encouraging this competitive entry moves the industries toward multiple data-delivery platforms, all to the significant benefit of consumers and the marketplace in general.

Flexibility is the lodestar predicate for the Next Generation broadcast transmission standard. The concept has been designed into the base fabric of the standard. Broadcasters can use their ATSC 3.0 data pipes for multiple services and dynamically reallocate bits on the fly as the viewer/consumer/marketplace demands. It is incumbent, then, for the government to ensure that this flexibility is preserved and not take any action or adopt any limitations that would freeze uses to a single service or market. Broadcasters expect and deserve the ability to exploit fully the significant capabilities of the Next Gen standard, and that requires deference by the Commission in crafting its rules to preserve that ability.

Thus, an essential element of this rulemaking should be enabling broadcasters to cultivate and offer their products and services under the same minimal level of government oversight as other technology providers. Just as the Commission would not dictate that a smart phone be limited to voice communication capabilities only, it should not limit deployment of Next Gen platforms to television only. The Bootstrap in A/321 is all that is necessary to meet this requirement.

With respect to simulcasting, broadcasters adopting ATSC 3.0 should continue to make their primary 1.0 signals available to viewers in their markets. But the Commission should and must recognize that simulcasting will not always be practical or even possible. Stations that wish to upgrade to Next Gen TV but which cannot provide an ATSC 1.0 simulcast in spite of reasonable efforts to do so should nonetheless be permitted to upgrade their service. Moreover, for the great majority of situations in which simulcasting is feasible, the Commission should be flexible and avoid a rigid definition of simulcasting. The deployment of the Next Gen platform may take several years and may progress at different speeds in different markets, meaning simulcasting may evolve differently at any given time in any given market. Moreover, a rigid

definition of simulcasting could prevent many of the benefits of ATSC 3.0 from being realized during the period of simulcasting.

With respect to licensing the new service during the Next Gen deployment, the Commission can adopt an “expanded licensing” proposal to permit a station entering into a simulcasting arrangement with another station to file a letter informing the Commission of such arrangement. A station’s license would “follow” it to a new hosting station and serve as a Next Gen license as well. This arrangement would be consistent with Commission practice and efficiently serve as a licensing scheme for the Next Gen deployment.

As to the issues raised regarding MVPD carriage of broadcast signals, they either (a) are not germane to adoption of the voluntary, technical standard, or (b) raise speculative controversies for which current Commission rules provide adequate remedies. Without exception, the concerns raised by the MVPDs are red herrings. The Commission should not take the bait to use this proceeding, which is focused on adopting a new technical standard to foster innovation, to re-open settled questions involving consent carriage negotiations. To do so would require the Commission also to reconsider retransmission consent rules any time MVPDs upgrade their own facilities. The government should not intervene on behalf of either broadcasters or MVPDs in a way that would inhibit or create disincentives to innovation.

Because of the significant capabilities inherent in the Next Gen standard, primarily in the deployment of single frequency networks (“**SFNs**”), we believe the Interference section in the NPRM is among the most critical in the proceeding. In assuring full market reach today, broadcasters cannot assume that all television viewing takes place at home, or that every non-MVPD household will use a bulky external (and likely roof-mounted) antenna (that often must be rotated when changing stations). Restoring broadcasters’ ability to reach all viewers has been

a core driver of ATSC 3.0. Consumers *expect* their mobile devices to work essentially everywhere in populated areas and along major intercity traffic corridors. These service objectives impose considerable design demands on stations deploying ATSC 3.0. They cannot be fully achieved through the existing high power/single tower architecture. We believe the Commission should provide flexibility to any station deploying a SFN to expand the areas in which it is able to provide reliable service within its interference footprint and, in some cases, beyond its interference footprint. We therefore propose three changes to the rules proposed in the NPRM.

First, a station should be able to expand service beyond its existing coverage area, including by expanding its interference footprint when doing so would not extend the station's 26 dBμ contour beyond the 26 dBμ contour of any other station. We propose ground rules, which are consistent with existing FCC application processing rules, to address mutual exclusivity when it arises. Co- and adjacent- channel stations should be permitted to coordinate between and among themselves to optimize and expand service.

Second, to the extent the Commission does not permit stations to extend their interference contours as proposed above, it should make two other minor rule changes that would allow stations to improve the service they provide, and expand the areas in which they provide useful service, without materially affecting the interference environment. The Commission should reflect, but redefine, each station's single-tower coverage contour, but redefine it as a licensed, "service area." This is only a minor change from the existing Distributed Transmission System ("DTS") rules. Beyond the DTS rules, however, stations should be permitted to provide service within their licensed service areas using any RF facilities (SFN nodes) that do not result in

emissions in excess of 26 dBμ at the single-transmitter -26 dBμ interference contour. This will allow for more optimized spectrum utilization, by better placing service where it is intended.

In addition, the Commission should make a small change to the “largest station” rule By modifying its DTS policy to permit each station participating in a joint SFN to cover the area covered by the largest station, as well as all of the non-overlapping areas pre-SFN areas served by any other station participating in the joint SFN.

The benefits of Next Generation television are ready to be made available to consumers *now*. Equipment manufacturers are in the process of developing chip sets for inclusion in both transmit and receive devices. Broadcasters, the consumer electronics industry, and broadcast equipment manufacturers are primed to move forward to offer compelling public interest benefits. Building on Internet Protocol capabilities, Next Generation Television will permit ubiquitous content delivery (fixed and mobile reception) while also permitting separation of content, caching, aggregation and distribution. The Single Frequency Network capabilities inherent in the new standard will facilitate hyper-localized programming and – significantly – supplement the television translator system that likely will be depleted as a result of the Spectrum Auction repack. Next Generation Television offers groundbreaking features to enhance the viewing experience, while also offering public safety enhancements, new programming opportunities, and new competitive choices for those seeking data distribution alternatives.

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COMMENTS OF ONE MEDIA, LLC

I. INTRODUCTION

Chairman Pai has asked us to imagine a world where programming is delivered instantaneously for free in ultra-high definition with immersive audio to fixed and mobile devices alike and seamlessly integrated with the web.¹ A world where sleeping devices are “woken up” with rich media images of Doppler radar and evacuation routes in multiple languages that are tailored to specific neighborhoods. And a world where the “grand dame” of distribution – broadcasting – is reinvented to provide new services, integrated into a 5G world to help dramatically shrink the gap between the haves and have nots of digital access. This world is the world of the new technical standard developed for broadcast television (“**Next Generation**,” “**Next Gen**” or “**ATSC 3.0**”)

This proceeding is noteworthy in that the essential question presented by the NPRM is not *whether* the Commission should permit broadcasters to bring these remarkably advanced capabilities to the market, but rather *how* to permit them to do so quickly with minimum oversight and maximum flexibility. ONE Media, LLC (“**ONE Media**”)² wholeheartedly agrees

¹ *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, Notice of Proposed Rulemaking, GN Docket No. 16-142 (rel. Feb. 24, 2017) (“**NPRM**”), Statement of Chairman Ajit Pai.

² ONE Media is a technology development company at the forefront of designing industry transmission standards encompassing its flexible and enhanced vision for broadcasting.

with the Chairman and asks the Commission to open the gates and let us meet the evolving needs of consumers and broadcasters – approve the Next Generation transmission standard that permits innovation, service improvement and spectrum efficiency.

Of course, the Commission anticipated this very scenario more than two decades ago. Even as it approved and mandated the existing digital transmission standard, the FCC recognized the risk that a mandatory standard might deter innovation. The Commission pledged periodic reviews and noted that the Advanced Television Systems Committee (“ATSC”) had “committed to continue to review the ATSC DTV Standard and to implement compatible extensions of, and deviations from, the ATSC DTV Standard that evolve in the future.”³

As it adopted updates to the ATSC DTV standard in 2002, the Commission acknowledged the public interest benefits of *expeditiously approving* technical improvements incorporated into standards that have been subjected to the engineering crucible of the ATSC:

Updating the rules to reflect improvements in the standard will benefit both the public and broadcasters by allowing broadcasters to make technical improvements in their service that will enhance the quality of DTV services they provide. As ATSC and others point out, the revisions in the new version of the ATSC DTV Standard were developed through careful consideration and deliberation within the technical committees of the ATSC and thus reflect a consensus agreement based on the inputs and viewpoints of all interested parties in all segments of the industry.⁴

The Commission urged the ATSC to pursue improvements, accorded significant weight to ATSC’s sanctioning of the new technology, and committed to work quickly to incorporate new ATSC standards in the FCC rules:

We also acknowledge the likelihood that there will be further improvements made to the DTV standards over time and indeed, encourage ATSC and other interested

³ See *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, Fourth Report and Order, MM Docket No. 87-268, 11 FCC Rcd 17771 ¶ 49 (1996).

⁴ See *Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, Second Report and Order and Second Memorandum Opinion and Order, MM Docket No. 00-39, 17 FCC Rcd 15978 ¶ 50 (2002) (emphasis added).

parties to continue their work and efforts in these areas. In this regard, ***we reaffirm our intention to give significant weight to proposed changes that reflect the kind of broad industry consensus*** developed through ATSC's standards-making procedures. ***While it will be necessary to conduct rulemaking activity to incorporate such changes in the rules, we nonetheless will endeavor to pursue such rulemaking as quickly as possible.***⁵

The ATSC has done precisely what the Commission urged. Assembled and refined over just the last three years and revolutionary in its capabilities, the new broadcast technology can transform the television experience for consumers and greatly improve spectrum productivity in the broadcast television bands.

In crafting the Next Gen standard, the ATSC's fundamental mission was to devise a set of technologies capable of evolving and – significantly – not limited to any one “silo” of content distribution. The new standard's Internet Protocol (“IP”) foundation enables broadcasters to enhance the wireless services experience of consumers and provide other new, innovative and competitive wireless distribution services. As distribution of digital media, and digital video in particular, becomes an increasingly greater share of both IP and wireless communications traffic, an IP-based broadcast transmission standard will allow broadcasters to compete effectively with other digital video distribution platforms and introduce new features and capabilities that other video distribution platforms lack. Providers of digital content, from video programmers seeking alternative distribution platforms, to auto manufacturers providing 3-D mapping and telematics data for driverless cars, to digital signage providers with high volume data transport needs, will have another competitive option from broadcasters. From a widely-held national policy perspective, encouraging this competitive entry moves the industries toward multiple data-delivery platforms, all to the significant benefit of consumers.

⁵ *Id.* ¶ 51(emphasis added).

II. DISCUSSION

A. Authorization of Voluntary Use of ATSC 3.0 Transmissions

Flexibility is the lodestar predicate for the Next Generation broadcast transmission standard and has been designed into its base fabric. Next Gen transforms Broadcasters' inflexible "channels" into IP data pipes that can be used to provide multiple services, dynamically reallocating bits on the fly as the viewers, consumers and marketplace demand. The government should permit this flexibility and should reject limitations that would restrict the uses for this powerful new technology. Consumers expect and deserve the best and most relevant services broadcasters can deliver by fully exploiting the significant capabilities of the Next Gen standard. The Commission should preserve that ability by deferring to the marketplace rather than dictating the specifics of Next Gen service.

To this end, the NPRM proposes to incorporate by reference into the Commission's rules ATSC A/321:2016 "System Discovery and Signaling" (A/321) and to authorize (but not require) broadcasters to use A/321 instead of ATSC A/53.⁶ The NPRM also asks whether the Commission should incorporate any other parts of the ATSC 3.0 standard aside from A/321 into its rules.⁷

This proceeding presents no choice more foundational than the choice between preserving broadcasters' flexibility in using the new standard by incorporating the minimum requirements to assure a stable and predictable RF environment on the one hand, and locking broadcasters into specific technologies on the other. In light of existing interference parameters

⁶ See "A/53: ATSC Digital Television Standard", available at <http://atsc.org/standard/a53-atsc-digital-television-standard/#.WOKtnWfattiQ>. The Commission has required broadcasters to transmit using ATSC A/53 since the end of the digital transition on June 12, 2009.

⁷ NPRM ¶ 5.

that specify the emission envelope applicable to broadcast signals, A/321 is the only portion of the standard that need be incorporated into the Commission's rules.

Authorizing use of A/321 allows broadcasters to pursue technical innovation in the future without causing harmful interference, without fundamental changes to the Commission's licensing scheme, and without seeking approval from the government to deploy new technologies when the marketplace is ready for them. Incorporating other elements of ATSC 3.0 into the rules puts outside limits on the scope of innovation by subjecting any further innovation to future government oversight. It essentially stunts the flexible architecture of the standard. Even an agile agency cannot move at the speed of technical progress or nimbly respond to changes in the market. There is no need to incorporate A/322 into the Commission's rules. Doing so would limit broadcasters to using waveforms optimized for service to fixed locations, perpetuating the traditional service limitations of NTSC and ATSC 1.0, which become less responsive to the demands of consumers every day.

The A/321 so-called "Bootstrap" identifies the nature of the incoming data and allows the receiver to choose what it wants to "see." The receiver then receives and processes only data that are relevant to that receiver and does not waste resources processing data that are of no use to that device or application. This has a number of advantages. It facilitates ATSC 3.0 adoption because it allows (and encourages) more devices to be compatible with ATSC 3.0, as the ATSC 3.0 devices will not consume system resources when ATSC 3.0 services are not being used. For example, a mobile-only device can ignore (and not waste resources on) Ultra-High Definition ("**UHD**") and High Dynamic Range ("**HDR**") streams intended for home theater and ancillary services unrelated to mobile-optimized program streams. Transmitting signals to fast-moving vehicles on a highway may require different waveforms than transmitting to a user sitting in a park or watching on a large screen at home. Forward error correction may need to vary from

area to area and use case to use case. Broadcasters should have the option to use different coding for different use cases (*e.g.*, short, non-intensive turbo coding as opposed to complex low density parity check (“LDPC”) coding). No single coding scheme is appropriate for all cases. Some devices, such as wearables and many “Internet of Things” devices) may be extremely simple, having limited resources, and may not need the complex coding of LDPC.⁸

Incorporating only A/321 into the Commission’s rules does not mean A/322 is not authorized: to the contrary, as a practical matter we expect that A/322 will be used universally for broadcasting for the foreseeable future. But incorporating A/322 into the rules, and thereby mandating its use, would enormously constrain the number of uses of ATSC 3.0, and thus limit the attractiveness to device makers of including ATSC 3.0 capability. As designed, there are 1,499 potential waveforms that can be signaled using the Bootstrap portion of the ATSC 3.0 Physical layer.⁹ The A/322 television waveform is but one of them. A/322 will be used from the beginning in the very first ATSC 3.0 implementations. But being locked into a limited set of waveforms derived from a finite group of modulation schemes, codes and code rates as defined in A/322 would limit broadcasters’ ability to customize service and evolve for future services – including mobile services – using the other 1,498 waveforms ATSC 3.0 supports. Mandating use of A/322, as a practical matter, limits the ATSC standard to *only* television, and more specifically, to a certain class of television service that is optimized for fixed/non-mobile applications.

The Commission should use the opportunity of this proceeding to acknowledge that, as with other technology-based products and services, government oversight of broadcaster’s

⁸ A/321 can wake sleeping devices, and in fact can wake only certain classes of sleeping devices.

⁹ See Section 6.2 of the ATSC A/321 standard, available at <http://atsc.org/wp-content/uploads/2016/03/A321-2016-System-Discovery-and-Signaling-1.pdf> (last accessed May 6, 2017). The Commission should not lock in only this one use of the ATSC 3.0 standard by making its use mandatory under the rules.

technology choices should be minimized. Just as the Commission would not dictate that a smart phone be limited to voice communication capabilities only, so it should not limit deployment of Next Gen platforms to providing only a particular type of television service. Requiring broadcasters to use A/322 in all instances would be tantamount to requiring use of a supercomputer to solve high school calculus problems. The Commission should do no more than authorize A/321 and require that ATSC 3.0 transmissions adhere to the established interference constraints. Other aspects of television service should be defined through the service rules, not through rigid, inflexible technology mandates.¹⁰ As Commissioner O’Rielly has admonished, the Commission should “leave as much flexibility as possible for the industry to innovate and change in the future to meet consumer demands. Ultimately, I’d like it to be next to nothing – just as it is with regards to how we handle the latest wireless standard.”¹¹

In short, an overly prescriptive technology mandate will enormously limit the ability of television broadcasting to evolve to incorporate new, feature rich technologies. Broadcast consumers are entitled to the same ongoing improvement of services that they get in other services.

B. Local Simulcasting

1. Requiring Next Gen TV Stations to Simulcast

Any seamless transition of wireless communications technology in widespread use by tens of millions of consumers requires the service provider to introduce the new technology while continuing to support the old, often for a period of years, while the marketplace adopts new devices compatible with the new technology. As the experience of the wireless industry

¹⁰ Importantly, the petitioners have not sought changes to the service rules – only to the technical rules.

¹¹ NPRM, Statement of Commissioner Michael O’Rielly.

reflects, market forces compel service providers to provide a seamless migration path, regardless of government mandates.

Unlike other services that use spectrum licensed by the FCC, though, the broadcasting service is highly constrained in its ability to support, simultaneously, two generations of technology. Rather than make new spectrum available for broadcasters to launch innovative services while continuing to serve legacy devices, as it has done with wireless services, the Commission is removing otherwise available broadcast channels. And even when spectrum might be available for transition channels, the Commission's rules in most cases prohibit the very broadcasters that need those channels from acquiring them. The Commission facilitated dual service simulcasting throughout the transition from analog to digital television by providing each broadcaster with a companion channel. For the migration to ATSC 3.0, the need of broadcasters to support two generations of technology persists, but the necessary spectrum is gone. Providing a seamless-as-practical transition for consumers in this environment requires great flexibility by both broadcasters and the Commission.

The NPRM proposes to require Next Gen TV broadcasters to simulcast each station's ATSC 1.0 primary channel in the ATSC 3.0 stream to ensure that viewers maintain access to the station's main channel content during the transition to ATSC 3.0.¹² We agree that, in general, stations deploying ATSC 3.0 should continue to make their primary 1.0 signals available to viewers in their markets. But the Commission's ATSC 3.0 deployment approach should and must recognize that simulcasting will not always be practical or even possible. As discussed in Section II.B.3.b. below, stations that wish to upgrade to Next Gen TV but which cannot provide an ATSC 1.0 simulcast in spite of reasonable efforts to do so should nonetheless be permitted to upgrade their service. And the Commission should also make reasonable efforts to identify and

¹² NPRM ¶ 11.

make available spectrum to support simulcasts. In most cases, we believe simulcasting will be accomplished through agreements between and among same-market broadcasters. However, as discussed in the “Deployment Alternatives” discussion in Section II.B.1.f., below, when unused spectrum is available to support the launch of ATSC 3.0 in a market, the Commission should make that spectrum available to transitioning broadcasters.

To the extent the Commission does impose specific obligations on stations launching ATSC 3.0 service, it should clarify that those obligations apply with respect to licensed facilities that actually operate using ATSC 3.0. A licensee that continues to operate with ATSC 1.0 should not be subject to specific transition rules – even if it arranges for another station to simulcast a program stream in ATSC 3.0 through a simulcasting agreement - unless and until that licensee switches its own facility’s operations to ATSC 3.0.

a. **Identical Content Requirement.** The NPRM seeks comment on whether an ATSC 3.0 simulcast must be identical to the station’s ATSC 1.0 broadcast, and whether identical content is an appropriate definition for “simulcast” for purposes of the rules.¹³ The Commission should be flexible and avoid a rigid definition of simulcasting. The deployment of the Next Gen platform may take several years and may progress at different speeds in different markets, meaning simulcasting may evolve differently at any given time in any given market. ATSC 3.0 offers many capabilities that could be forestalled, perhaps by many years, by a strict definition of simulcasting. These include the ability to target certain viewers by geography or other objective criteria, and to provide targeted emergency alerts, news, weather and advertising. It is features like these – which cannot be replicated in an ATSC 1.0 simulcast – that will help drive market demand for ATSC 3.0 devices. It would be counterproductive for the Commission to freeze this deployment based on a rigid adherence to current service limitations.

¹³ *Id.*

For example, not providing targeted AMBER Alerts to a discrete geographical area via a 3.0 hyper-localized transmission because it is not replicated on the basic 1.0 stream neuters the technological advancement of geo-targeting inherent in the Next Gen standard.

The NPRM asks commenters to explain the reasons for any deviations if simulcasts cannot be identical. As noted, the ATSC 1.0 signal does not have the capability to replicate the offerings that can be incorporated into an ATSC 3.0 signal. With respect to Next Gen broadcasts, stations want to give consumers good reasons to obtain Next Gen compatible devices with all the enhancements they will bring. Depending on the phase of the transition and the specific market, ATSC 3.0 broadcasts might include content targeted to different geographic zones, differently stacked newscasts, localized media-rich emergency warnings, or unique content requested by certain viewers, customized advertising/dynamic ad insertion, IP/web content integration, or any number of other features that cannot be provided using the existing standard. During the simulcast period, we expect that Next Gen signals will include programming that is either substantially the same, or that is comparable to the programming carried on the ATSC 1.0 signal, taking into account the ability to enhance that programming using the 3.0 capabilities.

Rights in programming and program elements (*e.g.*, network and syndicated programming, advertising, sports, music, interstitials, *etc.*) might also prevent stations from providing identical simulcasts. In some cases, ATSC 3.0 stations may be able to arrange for 1.0 simulcasts for some dayparts but not others. For these reasons, requiring simulcasts to have identical content is unworkable.

b. Simulcast Format Replication A requirement that all simulcasts must be in the same format (*i.e.*, SD or HD) would also unduly hamper deployment of ATSC 3.0. Broadcasters, already severely spectrum constrained, will be far more constrained during

the transition.¹⁴ The Commission can be confident that every broadcaster will seek to provide the highest resolution format for each program stream possible when transitioning to Next Gen, just as each broadcaster does today with ATSC 1.0 broadcasts. But given the fact that the Commission is not making available any simulcast channels to support the transition, it would be wholly unreasonable to require same-format simulcasting in all cases. The result of such a requirement undoubtedly would be that broadcasters that cannot transmit a HD stream in both ATSC 1.0 and ATSC 3.0 would be required to transmit in SD on both streams (in order to pass the identical format test) rather than offering one stream in HD.

A too-strict definition of simulcasting could impose a “lowest common denominator” limitation on Next Gen broadcasting and throttle demand. Broadcasters transitioning to ATSC 3.0 should be allowed and encouraged to deploy and exploit the capabilities of Next Gen.

c. **Coverage Area and Robustness.** The NPRM asks whether Next Gen TV broadcasters must ensure that at least one free ATSC 3.0 video stream is available at all times throughout the ATSC 3.0 coverage area and that such ATSC 3.0 signal be at least as robust as a comparable DTV signal to ensure that viewers within the protected coverage area continue to receive service at the current DTV protection levels.¹⁵ It is critical to a successful deployment of ATSC 3.0 that existing over-the-air viewers be able to continue to receive their local stations regardless of what generation of receiving devices they use. In practice, many over-the-air (“OTA”) viewers will rely on a mix of devices as 3.0-capable receivers gain market acceptance, and broadcasters must provide the best experience possible to all viewers throughout the transition. The Commission’s existing rules require each broadcaster to provide at least one

¹⁴ As noted in Section II.B.3., below, there will be some instances in which lack of spectrum prevents simulcasting altogether.

¹⁵ NPRM ¶ 12.

program stream free-to-air. In practice, the competitive marketplace has resulted in many broadcasters providing multiple streams of programming free-to-air.

However, the Commission should not impose a requirement that at least one ATSC 3.0 stream must be at least as robust as a comparable ATSC 1.0 signal, or that the ATSC 3.0 coverage area must cover the entirety of the ATSC 1.0 coverage area. Such a requirement would raise difficult definitional issues and could hinder rather than facilitate ATSC 3.0 deployment. As a practical matter, broadcasters are eager to embrace ATSC 3.0 in part because it offers the prospect of providing more robust coverage and even the prospect of increasing the effective service area of a station without increasing the station's interference footprint. Moreover, during the period of simulcasting, broadcasters will be making their signals available to the great majority of OTA viewers in not one but two formats, and it is likely that many viewers will gain new service.

d. Expanded Coverage Areas. The NPRM also asks how the Commission should “treat” any expanded areas of coverage resulting from the greater robustness of ATSC 3.0 signals.¹⁶ This very question points out the incongruence of using ATSC 1.0 criteria – themselves based on analog era coverage assumptions – to define and regulate ATSC 3.0 transmissions. The Commission's coverage standards today are merely statistical assumptions that often bear only incidental resemblance to the areas in which a broadcaster's signal is actually useable. Broadcasters have every incentive to expand their coverage and services offered, and to maintain services that the market accepts and demands. For the reasons discussed above, though, during the transition to ATSC 3.0, broadcasters need the maximum possible flexibility to offer services given the set of constraints and options that will be entirely

¹⁶ *Id.*

unique to each market. Broadcasters must also be given flexibility to test different variations of service, including different coding schemes, to determine how best to maximize service.

Therefore, at least during the first years, when stations are constrained by the need to simulcast, the Commission should not impose any requirements that broadcasters serve, or continue to serve, any particular area. With the launch of ATSC 3.0, the FCC should shift its focus to allow broadcasters to maximize service to the greatest extent they can do so without causing interference to other broadcasters, or where interference is mitigated and addressed through voluntary coordination and interference agreements.¹⁷ The existing table of allotments is based on analog and ATSC 1.0 assumptions. Those assumptions will be of diminished relevance once broadcasters begin deploying ATSC 3.0, because both coverage *and* 3.0 to 3.0 interference can be managed flexibly, while coverage and interference affecting 1.0 stations (including interference received from 3.0 stations) must hew to the assumptions that underlay the table of allotments.

Given the lack of paired transition channels, broadcasters must be given maximum flexibility to manage ATSC 3.0 deployment by making tradeoffs that respond to the specific conditions in each market. Imposing unnecessary restrictions relating to existing or dynamic coverage areas would be counterproductive. The Commission will have ample opportunity to consider the need for any coverage replication requirements at the time a broadcaster seeks to cease ATSC 1.0 operations. At that time the Commission will also have the benefit of knowing what the market conditions actually are. Rules adopted now, in a vacuum, would almost certainly hinder innovation without providing any corresponding benefit.

e. **Simulcasting Agreements.** The NPRM also asks whether the Commission should regulate simulcasting agreements by imposing bright-line rules or other

¹⁷ See Section II.D. below.

restrictions, requiring agreements to be filed, or reviewing and approving simulcasting agreements.¹⁸ The Commission should not impose any regulations on simulcasting agreements or require that they be filed with the Commission. As noted above, the lack of available transition channels means that the path to ATSC 3.0 deployment, including simulcasting, will take different routes in different markets. Broadcasters need maximum flexibility and must be free to focus on the end game. The agreements they reach to achieve this goal will reflect private business arrangements that the parties have a reasonable expectation will remain private.

There is no benefit to the public interest in regulating, or making public, private simulcasting agreements. All parties to a simulcast agreement are and will remain subject to direct regulation by the Commission. And the public benefit arising from the agreements – OTA simulcasting – will be readily apparent to the public. Government review of private contractual arrangements unnecessarily injects the government into areas in which it has no expertise. In this case, it would slow deployment and limit flexibility.

f. **Deployment Alternatives.** The NPRM asks commenters to address potential deployment alternatives that might accelerate adoption of the ATSC 3.0 standard.¹⁹ Specifically, the Commission asks whether broadcasters should be allowed to use vacant in-band channels remaining in a market after the incentive auction repack to serve as temporary host facilities for ATSC 1.0 or ATSC 3.0 programming by multiple broadcasters.²⁰ The answer to the latter question is an enthusiastic, “yes.” Where vacant channels are available, the Commission should allow broadcasters in the applicable market to use them as dedicated transition channels to ensure maximum continuity of service, just as it did during the transition from analog to digital broadcasting. The vacant channels should be available to use in

¹⁸ NPRM ¶ 13.

¹⁹ *Id.* ¶ 14.

²⁰ *Id.*

furtherance of ATSC 3.0 service as the participating broadcasters in the market see fit – either to launch ATSC 3.0 service, or to host ATSC 1.0 simulcasts. The fact that 1:1 transition channels are not feasible in this case is no reason to deny broadcasters and consumers the benefits of vacant channels to ease the transition, where those channels are available.

The Commission should give broadcasters proposing to use a vacant channel for 3.0 deployment priority over applicants for new television stations and acknowledge that such stations retain priority over displacement applications of LPTV and translator stations.²¹ This would be a temporary priority to encourage speed of deployment based upon articulated public interest benefits including innovation, expanded services and service areas, enhanced public safety support and emergency capabilities built into the standard.²² Once 3.0 deployment is completed, such “borrowed” channels could then be made available for new applicants.

The Commission should establish a policy of flexibility to accommodate other opportunistic approaches to making spectrum available to support transition channels. For example, the Commission should allow broadcasters to use vacated channels in the new 600 MHz wireless band until they receive notice that an affected wireless carrier will commence testing. Broadcasters would be limited to using the spectrum depending on availability on a market-by-market basis for temporary lighthouse stations, or to initiate ATSC 3.0 broadcasts, prior to use by carriers. In addition, with the consent of all affected wireless licensees, broadcasters should be permitted to continue providing 1.0 lighthouse service in the new wireless band.

²¹ As licensed facilities, each full power transition station will have the same priority with respect to other services, and over all unlicensed uses, as all other licensed stations.

²² Local broadcasters as a market-wide group could petition the Commission for a grant of a renewable Special Temporary Authority for use of the channel.

The Commission should also consider granting some measure of relief from performance requirements to carriers that facilitate lighthouse operations. Although some winning forward auction licensees may have a near-term need to use the new spectrum, others may not have an immediate need. In some cases, spectrum auctioned for wireless service has remained fallow for many years while the winning licensees have focused their capital resources in other bands, worked to aggregate and rationalize newly acquired license areas, or worked various technical issues through standards bodies and handset makers. As long as the spectrum continues to be used productively and not warehoused – which is the sole purpose of performance requirements²³ – and affected wireless licensees consent, there is no reason for the timing of the spectrum auction itself to set an arbitrary timeframe for broadcast operations to cease. If the market determines that the best use for some of the 600 MHz spectrum in some areas for a period of time is to support innovation in the broadcast service, the Commission should permit and encourage those marketplace arrangements.

Relief from performance requirements for forward auction bidders would serve the public interest with a win-win result. The public interest in local television broadcasting, and in facilitating innovation, is well established. Giving forward auction winners an incentive to cooperate in facilitating a smooth rollout of ATSC 3.0 by extending performance milestones would allow those winning bidders to focus their deployment resources where the market demands, rather than spreading those resources across all licensed areas simply to meet performance requirements. Warehousing would not be an issue, as the spectrum would be used

²³ *In the Matter of Use of Spectrum Bands Above 24 GHz for Mobile Radio Service.*, 31 FCC Rcd 8014, 8084 (2016).

to support broadcasting and facilitate the rollout of ATSC 3.0 – the very purpose the spectrum has served for decades.²⁴

2. Methods for Licensing or Authorizing Simulcast Stations

a. New Licensing Requirements. The NPRM asks what license modifications would be needed for a television broadcaster to convert its current ATSC 1.0 facility to a facility transmitting ATSC 3.0 signals.²⁵ The Commission observes that it believes a broadcaster would need to modify its station service class so that the Commission can track and make publicly available information about the type of broadcast service provided by stations during the Next Gen transition. The Commission proposes to treat these modifications as minor modifications.

The Commission should not impose new licensing requirements on broadcasters that convert to ATSC 3.0. Simple notification to the Commission that the station has switched to Next Generation transmissions is all that is needed for the Commission to track and make available information to the public. Both standards will be authorized by the rules. A station can convert to ATSC 3.0 in most cases with a simple change of exciter, and most new transmitters available today are already ATSC 3.0 compatible. The interference characteristics of both standards are functionally identical. Some broadcasters may request other facility changes in concert with a switch to Next Generation transmissions, but those should be treated in the normal course.

²⁴ Channel 45 may be the best candidate for a temporary “lighthouse” channel in many markets. Although not optimum for long-term use as wireless carriers begin deployment as the channel sits in the “duplex gap,” use of the channel to jump-start Next Gen deployment can be accomplished with minimum impairment to use of the 600 MHz band by wireless carriers. The Commission itself adopted a proposal to place some broadcasters in the 11 MHz gap created as a buffer between uplink and downlink wireless transmissions. *Broadcast Incentive Auction Scheduled to Begin on Mar. 29, 2016 Procedures for Competitive Bidding in Auction 1000, Including Initial Clearing Target Determination, Qualifying to Bid, & Bidding in Auctions 1001 (Reverse) & 1002 (Forward)*, 30 FCC Rcd 8975, 8990 (2015) (“We adopt our proposal to allow the optimization tool to assign television stations within the 600 MHz Band where necessary to accommodate market variation in a manner that best fulfills the clearing target objectives, and not to restrict it to assignments in specific portions of the 600 MHz Band — downlink, uplink, or duplex gap.”).

²⁵ NPRM ¶ 15.

b. Separate Licenses vs. Multicast Treatment. The Commission also asks whether simulcasts should be separately licensed as second channels of the originating station or treated as multicast channels of the host station and asks whether stations should be allowed to choose between those two approaches.²⁶

Although each option has advantages and disadvantages, the Commission can combine the virtues of these proposals, while minimizing their drawbacks, by adopting an alternative approach based on redefining a station's license. Under this "expanded licensing" proposal, a station entering into a simulcasting arrangement with another station would file a letter informing the Commission of such arrangement. This arrangement would be noted on each station's existing license, so that a station's license would cover both its Next Gen 3.0 signal and its ATSC 1.0 signal on a hosting station, while the host station's license would cover both its ATSC 1.0 signal as well as its Next Gen signal. This is consistent with Commission practice. FCC licenses regularly include notes that explain, define or limit a station's operating authority.

This approach would provide broadcasters with significant flexibility, as they would simply notify the FCC of their arrangements. No Commission review or approval of these arrangements would be required, as both stations would continue to transmit on already-authorized, licensed facilities. Non-commercial stations would be able to partner with commercial stations in Next Gen deployments, because the commercial station's content would be separately licensed and excluded from the non-commercial station's license. Both MVPDs and broadcasters would have clarity regarding carriage obligations, as broadcasters would continue to have a single license and continue to designate their primary stream for Must-Carry purposes. The Commission would have clear enforcement authority over the originator of programming violating any FCC rules, as well as a ready means to monitor the progress of Next

²⁶ *Id.* ¶ 16

Gen deployments in individual markets and across the country. Both the Commission and broadcasters would avoid the complexity of addressing the separate regulatory fees, separate renewals and the potential for competing applications.

c. **Channel Sharing Rules.** The NPRM asks, should the Commission authorize a licensed simulcast approach, whether the existing channel sharing rules should apply. The fact that each party to a transition channel sharing agreement will continue to hold its own facilities means the Commission need not impose specific requirements on transition channel sharing agreements. Because of the relatively low risk associated with channel sharing in the context of deploying ATSC 3.0, compared to the existential risks associated with the Incentive Auction, requirements imposed on channel sharing in the Incentive Auction should be significantly reduced in the ATSC 3.0 deployment context. The Incentive Auction Report and Order²⁷ provides that channel sharing agreements must contain provisions outlining each station's rights regarding the following areas:

- (1) access to facilities, including whether each licensee will have unrestrained access to the shared transmission facilities;
- (2) allocation of bandwidth within the shared channel;
- (3) operation, maintenance, repair, and modification of facilities, including a list of all relevant equipment, a description of each party's financial obligations, and any relevant notice provisions;
- (4) termination or transfer/assignment of rights to the shared licenses, including the ability of a new licensee to assume the existing CSA; and
- (5) a provision ensuring that each channel sharing licensee "retain spectrum usage rights adequate to ensure a sufficient amount of shared channel capacity to allow it provide one SD program stream at all times."²⁸

²⁷ *In the Matter of Expanding the Econ. & Innovation Opportunities of Spectrum Through Incentive Auctions*, 29 FCC Rcd 6567 (2014).

²⁸ *Id.* at 6852 ¶ 699.

None of these provisions should be mandated by the FCC in connection with transition simulcasting, because each party to a Next Gen simulcasting agreement will always have the ability to default back to its own licensed facility in the event of irreconcilable differences. If the Commission does authorize temporary channel sharing to facilitate the transition, the license terms should track the underlying main facility of the licensee.

The NPRM observes that, whether a simulcast signal is treated as a temporarily shared channel separately licensed to the originating station or as a multicast stream under the host's license, its regulatory treatment will be affected and asks for comment.²⁹ In the channel sharing context, the Commission's jurisdiction and enforcement should follow the licensee originating the programming. In the case of multicast hosting, the Commission would normally enforce program violations against the licensee of the transmissions. In the case of cross-hosting to facilitate Next Gen deployment, a better approach would be for the Commission to enforce against the program originator, which in all cases will be another television station subject to FCC enforcement. Notification to the Commission by a host station that it is hosting another station should absolve that host station of liability for the tenant's programming. Any violations occurring on two or more simulcast programming streams should be considered only one violation.

The Commission asks whether there are any other procedures that could streamline the process of simulcasting, such as authorizing broadcasters to simulcast through grants of special temporary authority.³⁰ As noted, the preferred approach is not to require separate licenses, but rather let the existing "tenant's" license follow that licensee to the host's antenna. In the event that the Commission requires a new license, a STA is a flexible option. There should be no

²⁹ NPRM ¶ 21.

³⁰ *Id.* ¶ 22.

difference between a STA and a license other than the term, and the Commission should be able, in this proceeding, to extend STA terms to accommodate the deployment. Except possibly in the channel sharing context, we do not believe STAs should be required for stations to host transition-related simulcasts. We already expect that the Commission will keep records of which licensed facilities have switched to Next Gen broadcasts. Simple notification to the Commission that two or more stations have commenced simulcasting should provide all of the information the Commission needs to maintain a clearinghouse of information about the status of ATSC 3.0 deployment and for enforcement purposes.

3. Coverage and Signal Quality Issues Related to Local Simulcasting

a. Different Service Contour Partners. The NPRM seeks comment on the extent to which a Next Gen station should be permitted to partner with an ATSC 1.0 host simulcast station with a different service contour or community of license.³¹ As explained above, broadcasters have every incentive to maximize and preserve coverage for all viewers. But they must have the maximum flexibility to find ways to deploy ATSC 3.0, and all stakeholders, including the Commission, must accept that different markets will require different sets of tradeoffs. Arbitrary simulcast coverage rules, such as a percentage of coverage or replication of noise-limited contours, will limit the deployment of ATSC 3.0.

b. Phase-In Service Restrictions. The Commission asks whether more relaxed ATSC 1.0 service restrictions should be phased in as the transition progresses based on the possibility that it may eventually become difficult for Next Gen stations to find suitable partners for local simulcasting.³² Successful deployment and ongoing growth of ATSC 3.0 require the Commission to allow stations great flexibility to manage the transition, not only

³¹ *Id.* ¶ 23.

³² *Id.*

in the later stages of ATSC 3.0 deployment, but also in the earliest stages, when required by market conditions. The extreme case involves single station markets, in which simulcasting will be impossible. The Commission should rely on the discipline of the market to drive the pace of the transition and the extent of simulcasting. If the only station in a market wishes to transition, that station has doubtless decided that its viewers, on the whole, will be better served with a flash cut to ATSC 3.0 than by continuing to be limited to ATSC 1.0. A licensee would consider all relevant factors in the market, including penetration of devices capable of receiving each standard and the expected gain or loss in net viewing in deciding when to transition. The Commission is not in a position to second-guess those tradeoffs.

4. Other Local Simulcast Issues

The NPRM raises a number of other questions about local simulcasting, including the benefits of market-wide simulcasting plans, whether small, rural, low-power, and Non-Commercial Educational (“NCE”) broadcasters would face unique circumstances with regard to the voluntary provision of ATSC 3.0, and whether the Commission should establish a sunset for mandatory ATSC 1.0 simulcasts.³³

The Commission should facilitate (but must not mandate) market-wide deployment plans. A coordinated market-wide deployment promises many advantages including much faster likely adoption of devices and more efficient and seamless simulcasting plans. We believe the advantages are so significant that most broadcasters will participate without government coercion. But the Commission cannot *mandate* market-wide plans unless it also requires all stations in each market to participate, because doing otherwise would allow one or two holdouts to delay or interfere with the deployment of Next Gen service by others. Accordingly, in order to preserve the preferred voluntary nature of the adoption of ATSC 3.0 by broadcasters, the

³³ *Id.* ¶¶ 25-27.

Commission should not mandate market-wide deployment. A market-based solution should be the Commission's default position.

Small, rural, low-power and NCE broadcasters indeed will each face unique issues in deploying ATSC 3.0. The Commission should encourage all licensees to upgrade and should provide each class of broadcaster with maximum flexibility. As discussed above, smaller markets may pose unique challenges for simulcasting, or simulcasting may be impossible in some cases. The Commission should permit exceptions for stations to upgrade without simulcasting when simulcasting is impossible or impractical. LPTV stations should be permitted to host,³⁴ or be hosted by, full power stations' simulcast streams, but should also be permitted to flash cut when hosting is impractical or infeasible.³⁵ Because of the lack of receivers early in the transition, LPTV stations will likely not to be the first to deploy and will likely continue to offer 1.0 services. In some cases, though, LPTV licensees may see a market opportunity in being among the first to transition, so that they can offer a higher value, differentiated service. Such stations should be allowed to simulcast the signal of any other station without a reciprocal obligation of the full power to simulcast the low power station.

We agree that it is premature to make any determinations as to when the marketplace will make all further broadcasting in ATSC 1.0 unnecessary. That decision can be made as the deployment proceeds based on conditions unique to each market. However, as explained elsewhere in these comments, the Commission should be flexible in releasing individual stations from their simulcasting obligations based on conditions in the station's local market at the time

³⁴ We expect that a full power station would choose to have its ATSC 1.0 stream simulcast on a LPTV facility only in circumstances in which better options were not available.

³⁵ Imposing a simulcast requirement on LPTV stations is unlikely to yield any significant or measureable improvement in service to the public and should be avoided. Imposing a simulcast obligation when it is impossible simply means that many LPTV stations will never deploy. At some point most LPTV stations will have to choose to flash cut. The Commission is not equipped to determine when the best time to change is for thousands of local LPTV stations.

of the request. Appropriate conditions to be considered in such cases could include the number of full power stations in the market, information regarding the number of ATSC 1.0 and 3.0 devices in actual use,³⁶ ratings data showing greater usage of 3.0 than 1.0, penetration of MVPDs retransmitting the station's programming, and the availability of core programming from other sources, including over-the-top.

C. MVPD Carriage

The Commission seeks comment on program carriage obligations of MVPDs during the period when broadcasters are voluntarily implementing ATSC 3.0 service and on issues related to the voluntary carriage of ATSC 3.0 signals through the retransmission consent process.³⁷ We believe the issues raised are either not germane to adoption of the voluntary, technical standard or raise speculative controversies for which current Commission rules provide adequate remedies.

1. Mandatory Carriage Issues

The NPRM asks how to implement Must-Carry rights and obligations in the context of ATSC 3.0 service.³⁸ No changes to the long-established Must-Carry regime are required by the adoption of a voluntary new transmission standard. A Must-Carry station that airs an ATSC 3.0 signal will retain Must-Carry rights with respect to the same geographic area and the same MVPDs as it had when it operated with ATSC 1.0, and will still have the obligation to deliver a good quality signal to the MVPD. In most cases, at least initially, signal delivery would be accomplished via the 1.0 simulcast. Ultimately, however, if the broadcaster delivers a signal

³⁶ The relative penetration of ATSC 1.0 versus 3.0 devices is not relevant to the impact on viewers of an end to simulcasts. Many ATSC 1.0 receivers are unused, because, as a practical matter they are limited to fixed, in-home use cases, and most homes receive local broadcast signals through an MVPD service. We expect that a vastly higher percentage of ATSC 3.0 receivers that are deployed will actually be in use than is the case with ATSC 1.0 receivers, in part because ATSC 3.0 signals can be received in use cases, including mobile, in which traditional MVPD services cannot.

³⁷ NPRM ¶ 28.

³⁸ *Id.* ¶ 31.

level that qualifies as a good quality signal under the Commission's rules and using a broadcast transmission standard approved by the Commission, it remains the responsibility of the MVPD to receive and retransmit that signal.

The same analysis applies to the question of which stream is entitled to Must-Carry rights. Must-carry rights track the underlying facility license, regardless of what technical standard is used by that facility, and the legal basis for according mandatory carry rights derives from that original broadcast even if the programming is simulcast on a different station. No changes to the Must-Carry rules are needed and MVPDs do not assume any new obligations. Even in the case of a licensed simulcast approach, the Must-Carry rights should track the original license and the original facility of the station asserting Must-Carry rights.³⁹ Neither the broadcaster nor the MVPD should suffer or enjoy any expansion of rights or diminution of obligations by virtue of transition simulcasting.⁴⁰

We disagree with the tentative conclusion that ATSC 3.0 signals should not be accorded mandatory carriage rights, particularly in light of the fact that simulcasting may not be possible in all cases.⁴¹ Moreover, ATSC 3.0 decoders will be readily available by the time stations initiate 3.0 broadcasts. Given the dearth of broadcast capacity available during the transition (because of the demands of simulcasting), it seems unlikely that many, if any, Must-Carry stations will transmit streams with materially higher bitrates than HD streams already being retransmitted. The Commission should not stretch the bounds of the statute and the longstanding

³⁹ Cf. *Id.* ¶ 32.

⁴⁰ We do not believe the Must-Carry rights of a station that switches to ATSC 3.0 but simulcasts in 1.0 via a host facility should travel to (or be determined by reference to) the facility hosting the 1.0 simulcast. As noted above, the 1.0 simulcast may serve as an acceptable alternative delivery method, but the rights and obligations of the station and the MVPD should not be changed. However, the Communications Act does not authorize the Commission to require broadcasters to undertake any special efforts to facilitate receipt of their signals by MVPDs subject to mandatory carriage beyond delivering the required signal level or providing alternative delivery.

⁴¹ NPRM ¶ 36.

Must-Carry rules to solve problems that will be isolated if they occur at all. Instead, the Commission should encourage broadcasters and MVPDs to cooperate to resolve any issues.

We do not support a requirement that Must-Carry broadcasters give notice to all MVPDs at least 60 days in advance of simulcasting in ATSC 1.0 format (*i.e.*, relocating ATSC 1.0 streams to another facility).⁴² As explained above, the Must-Carry rights should not travel to a host 1.0 facility. Signal delivery via simulcasting, and indeed most of the other issues and questions raised in the Must-Carry section of the NPRM, are adequately covered by the existing Must-Carry rules.

2. Retransmission Consent Issues

The NPRM poses a variety of questions about the impact of ATSC 3.0 transmissions on voluntary signal carriage via retransmission consent.⁴³ MVPDs have complained of possible costs to receive ATSC 3.0 transmissions and argue that they will be coerced by broadcasters exercising their “leverage” to retransmit ATSC 3.0 signals.

Without exception, the concerns raised by the MVPDs are red herrings. The Commission should not take the bait to use this proceeding, which is focused on adopting a new technical standard to foster innovation, to re-open settled questions involving retransmission consent negotiations. To do so would require the Commission also to reconsider retransmission consent rules any time MVPDs upgrade their own facilities. The government should not intervene on behalf of either broadcasters or MVPDs in way that would inhibit or create disincentives to innovation. In considering MVPDs’ requests that broadcasters’ retransmission consent rights be constrained in a way that could prevent their subscribers from enjoying the enhanced features and quality of 3.0 transmissions, the Commission must remember that MVPDs do not

⁴² *Id.* ¶ 37.

⁴³ *Id.* ¶¶ 39-41.

necessarily want the transition to ATSC 3.0 to succeed, because it will make free over-the-air broadcasting a stronger competitor.

Moreover, the argument that broadcasters will force MVPDs to accept unwanted ATSC 3.0 signals is a contrived issue. In the early stages of the transition, MVPDs will likely continue to carry the ATSC 1.0 signal as they have in the past, because it will take time for broadcasters to take full advantage of the enhanced capabilities of ATSC 3.0 (and, as explained above, OTA capacity may be too limited to permit widespread UHD and HDR until simulcasting sunsets).⁴⁴

To the extent an MVPD wants access to the 3.0 signal at some point, or a broadcaster seeks to persuade an MVPD to carry a 3.0 stream, those asks will simply be other elements of negotiated consideration. Broadcasters and MVPDs routinely negotiate a wide range of operational and technical terms in reaching retransmission consent agreements. More often than not, it is the MVPD that demands broadcasters accede to certain technical requirements. For example, because of the technical limitations of its distribution plant, or because they prefer to allocate capacity to other services, MVPDs routinely compress broadcast signals far below the quality transmitted over-the-air. That technical deterioration is a factor in establishing compensation for carriage rights. In other cases, some MVPDs seek to limit what material broadcasters include in their bit streams. Similarly, many cable systems cross DMA lines, and many MVPDs are unable to limit retransmission to in-market households only. This fact creates significant issues for broadcasters, which often lack rights to permit retransmission outside of their markets, but which must strive to achieve full DMA coverage. The hard limits of DBS satellite transponder capacity or of legacy analog or older digital cable systems are also factors in

⁴⁴ The Commission asks what equipment would be necessary for an MVPD to carry an ATSC 3.0 stream on a voluntary basis, and whether the Commission should take those equipment needs into consideration in this proceeding. NPRM ¶ 41. A decoder is the only equipment necessary, but this question is irrelevant because retransmission consent terms are entirely voluntary. Moreover, the cost of decoders relative to the value of most retransmission contracts is not even a rounding error.

many retransmission consent negotiations. Pass-through of ratings service watermarks, alternative signal delivery, “TV Everywhere” implementation, and a host of other matters also require broadcasters and MVPDs to make concessions regarding technology choices. Broadcasters and MVPDs routinely horse-trade to reach agreement on these sorts of issues. Even if the Commission had authority to inject itself into such technical, substantive terms, there is no reason for it to do so.

The Commission should reject the ATVA’s request that the Commission address the question of patent royalties attributable to ATSC 3.0.⁴⁵ This, too, is a contrived issue. ATSC 3.0 will not impose material new IP costs. All technology has embedded IP costs, including patent royalties. The ATSC requires that all standard-essential patents conform to fair, reasonable, and non-discriminatory – so-called “FRAND” terms,⁴⁶ and the ATSC 3.0 suite of patents will be no different. Moreover, patent costs, if any, will be infinitesimally small compared to the typical value of a retransmission consent agreement.⁴⁷ And as discussed above, to the extent

⁴⁵ *Id.*

⁴⁶ See Advanced Television Systems Committee, Inc., Patent Policy at: http://atsc.org/wp-content/uploads/2016/06/B-4-2007-12-13_patent_policy_form_editable.pdf (last accessed May 6, 2017).

⁴⁷ The American Television Alliance (“ATVA”) misstates the patent process to exaggerate the contrived issue of purported “new” cost burdens associated with transmission of an ATSC 3.0 signal. Although there will likely be patent royalties associated with ATSC 3.0 decoders as there are with any other technology standard, those costs will not be passed down to consumers through higher MVPD subscriber bills. In ATSC 1.0 and all other broadcasting standards, the royalty rate has always applied to the *receiver device*. “Receiver device” is generally considered to be the *end-user* receiver device, not associated with the cable transmission plant. Even if MVPDs chose to carry an ATSC 3.0 signal with new equipment, a patent royalty seems unlikely to apply, or will be embedded in the fixed cost of the receiver (which cost the MVPDs are free to attempt to allocate to the broadcaster in retransmission consent negotiations). Furthermore, historical royalty rates ranges from approximately \$0.75 - \$5.00 per device, which would be a trivial added cost on capital equipment used by MVPDs. The ATSC 3.0 standard has not been finalized so there have not been any discussions around how relevant patents will be licensed. One scenario is that, like ATSC 1.0 and other widely used technical standards, a patent pool might be established to facilitate and streamline patent licensing discussions.

The Commission should also note that ATSC 3.0 is not a mandatory standard. Unlike ATSC 1.0, the government is not forcing this technology into the market. Royalty rates will reflect a market price. If broadcasters, MVPDs or consumers are unwilling to pay the costs of the technology, they will not adopt it.

And to address the ATVA concern about High Efficiency Video Coding (“HEVC”) costs, it is important to note that its explanation of the current situation is misleading and incomplete. The industry has strongly opposed the per-subscriber royalty fee structure proposed by the HEVC Advance pool. To date, Warner Bros is the only licensee in the HEVC Advance pool (joined as licensee/licensor). Technicolor, a former member of the HEVC Advance pool,

retransmission consent agreements potentially affect the technology costs of either party, those costs are routinely negotiated and allocated by the parties.

In any event, the Commission does not have jurisdiction over patents. The Commission has no jurisdiction to unbundle intellectual property costs and insinuate itself into valuation of rights or forms of consideration in any retransmission negotiation, whether the costs of signal delivery, digital ad insertion, local zoning, or the appropriate valuation of intellectual property, whether programming or technology.⁴⁸

The NPRM asks whether the Commission should consider prohibiting MVPD carriage of ATSC 3.0 signals through retransmission consent negotiations until the ATSC Specialist Group on Conversion and Redistribution of ATSC 3.0 Service produces its initial report, which is expected later this year.⁴⁹ Apart from the fact that the Commission lacks statutory authority to impose such substantive requirements on retransmission negotiations, the Commission is obliged by law to encourage innovation.⁵⁰ It would be entirely inconsistent with this obligation for the Commission on the one hand to authorize a new technology because it is innovative and will bring benefits to the public and at the same time forbid willing parties to agree to deploy that innovation.

The Commission has long held that MVPDs and broadcasters may negotiate any form of consideration in connection with retransmission consent. The foundation of this FCC policy comes directly from the 1992 Cable Act and the legislative history (S.622).⁵¹ If the FCC finds

withdrew from the pool to directly license its HEVC patents, citing concerns about HEVC Advance as an impediment to adoption.

⁴⁸ We also note that ATSC 3.0 is envisioned as an eventual replacement for ATSC 1.0, so eventually the costs of ATSC 1.0 essential patents will be eliminated.

⁴⁹ NPRM ¶ 41.

⁵⁰ See 47 U.S.C. § 301; Middle Class Tax Relief and Job Creation Act of 2012, Pub.L. 112–9647 § 6401 *et seq.* (codified at 47 U.S.C. § 1451 *et seq.*).

⁵¹ Cable Television Consumer Protection and Competition Act, Pub.L. No. 102–385, §§ 3, 9, 14, 106 Stat. 1460 (1992) (“Cable Act of 1992”); 47 U.S.C. § 542(c).

that deployment of new technology and new benefits to consumers serves the public interest (and see above comments about innovation), it would be counterproductive in the extreme to prevent willing parties from negotiating for distribution of ATSC 3.0 broadcasts via MVPDs.

D. Service and Interference Protection and Single Frequency Networks

The Commission in Sections D and E of the NPRM ask questions about the implications ATSC 3.0 on interference. Because of the significant capabilities inherent in the Next Gen standard, primarily in the deployment of single frequency networks (“SFNs”), we believe these sections are among the most critical in the proceeding.

In considering these questions, the Commission should keep in mind that broadcasters seek to reach effectively 100% of the residents in their markets. Maximum coverage is the *sine qua non* of a free-to-air, advertising supported service, because it is a feature no subscription based service can match. But unlike conditions when existing broadcast television facilities were designed and built, broadcasters cannot assume that all television viewing takes place at home, or that every non-MVPD household will use a bulky external (and likely roof-mounted) antenna (that often must be rotated when changing stations). Restoring broadcasters’ ability to reach all viewers has been a core driver of ATSC 3.0. ATSC 3.0 deployments must provide equally robust service to 70” home theater screens deep inside apartment buildings in Brooklyn, to 7” tablets in suburban basements in Lockport, New York in the shadow of Niagara Falls, 5” screens in the back of an SUV west of Charleston, South Carolina, and mobile devices in the Kickapoo Reservation in northeastern Kansas. Moreover, consumers *expect* their mobile devices to work essentially everywhere in populated areas and along major intercity traffic corridors. These

service objectives impose considerable design demands on stations deploying ATSC 3.0. They cannot be fully achieved through the existing high power/single tower architecture.⁵²

1. Summary of Service and Interference Proposals

The NPRM asks a range of questions about the technical parameters of ATSC 3.0 and whether any changes in the Commission's service area, interference protection, and other technical rules should be considered in connection with the authorization of ATSC 3.0.⁵³ We discuss our responses to specific questions below. In summary, we believe the Commission should provide flexibility to any station deploying a SFN to expand the areas in which it is able to provide reliable service within its interference footprint and, in some cases, beyond its interference footprint. We propose three changes to the rules proposed in the NPRM.

First, a station should be able to expand service beyond its existing coverage area, including by expanding its interference footprint, when doing so would not extend the station's 26 dBμ contour beyond the 26 dBμ contour of any other station.⁵⁴ We propose ground rules, which are consistent with existing FCC application processing rules, to address mutual exclusivity when it arises. Co- and adjacent- channel stations should be permitted to coordinate between and among themselves to optimize and expand service.

Second, to the extent the Commission does not permit stations to extend their interference contours as proposed above, it should make two other minor rule changes that would allow stations to improve the service they provide, and expand the areas in which they provide useful

⁵² The NPRM tacitly recognizes this, and proposes to permit broadcasters to deploy SFNs based on the DTS rules adopted in 2008. *See*, 47 CFR § 73.626. The NPRM asks whether those rules generally are adequate to authorize an ATSC 3.0 SFN station, and whether an ATSC 3.0 SFN should be considered a DTS station for purposes of the rules. *See* NPRM ¶¶ 59-60. As explained below, we agree that the DTS framework is adequate to govern SFNs, with some changes.

⁵³ *Id.* ¶¶ 43-63.

⁵⁴ For simplicity, in this section we refer to the signal levels that define the coverage and interference contours of stations operating on channels 14-49 (or 14-36, post-repacking). The same principles, though, apply to other channels.

service, without materially affecting the interference environment. The Commission should reflect, but redefine, each station's single-tower coverage contour as a licensed, "service area." This is only a minor change from the existing Distributed Transmission System ("DTS") rules. Beyond the DTS rules, however, stations should be permitted to provide service within their licensed service areas using any RF facilities (SFN nodes) so long as emissions do not exceed 26 dBμ at the station's single-transmitter 26 dBμ interference contour. This will permit more optimal spectrum use by better placing service where it is intended.

In addition, the Commission should make a small change to the "largest station" rule,⁵⁵ which permits stations to exceed normal power and antenna height limits in order to provide the same geographic coverage area as the largest station within their market. The Commission has allowed DTS stations to take advantage of the "largest station" rule.⁵⁶ As we explain below, the unique demands of SFNs that (for economic and practical reasons) must operate from sites shared by multiple stations in a market, mean that all participating stations will have essentially the same coverage areas. Therefore, we ask the Commission to modify its DTS policy to permit each station participating in a joint SFN to cover the area covered by the largest station, as well as all of the non-overlapping areas pre-SFN areas served by any other station participating in the joint SFN.⁵⁷ We include diagrams below to illustrate.

2. Service Expansion Without Interference

a. Background. As background to our proposal discussed below, we note that OET 69 was designed in an environment in which the noise limited contour was fixed at a specific level, with a so-called "interference contour" that extends further. The ATSC 3.0

⁵⁵ See 47 C.F.R. 73.622(f)(5); see also fn. 70 below.

⁵⁶ See *In the Matter of Digital Television Distributed Transmission System Technologies*, 23 FCC Rcd 16731, 16751 ¶ 35 (2008) ("DTS Order").

⁵⁷ We illustrate the issue, and our proposal, in Section II.D.2.d. below.

standard was designed to comport with the existing table of allocations and minimum distance separations, so it is possible simply to convert some or all ATSC 1.0 stations to ATSC 3.0 without making any changes in the coverage and interference rules. Many of the assumptions underlying those rules, however, do not apply to the performance of ATSC 3.0 transmissions. The coded orthogonal frequency division multiplexing technology on which ATSC 3.0 is built is vastly more flexible than the 8-VSB modulation. Strict application of the existing coverage and interference rules to ATSC 3.0 service would constrain major service improvements that ATSC 3.0 enables for viewers (most notably mobility) without any corresponding benefits.

Two decades ago the Commission defined DTV coverage as the 41 dBμ F(50/90) contour for UHF stations, 36 dBμ for Channels 7-13 and 28 dBμ for Channels 2-6. The signal levels the FCC used to define the DTV coverage contour in 1997 were based on the ATSC 1.0 planning factors outlining specific antenna gains and receiver performance expectations. Those are described in FCC OET Bulletin 69. ATSC 1.0 allotment power levels were chosen to best match a station's DTV coverage contour with its NTSC Grade B contour.

b. Technical Parameter Modification. The NPRM seeks comment on whether the Commission should modify any technical parameters based on physical differences between the ways that broadcasters would deliver DTV and ATSC 3.0 signals.⁵⁸ In order to take full advantage of ATSC 3.0, and in particular the deployment of SFNs, the Commission should consider updates to the standard assumptions. Each television station's 41 dBμ contour should continue to be protected from co-channel signal levels at or above the 26 dBμ threshold. In an ATSC 3.0 SFN environment, this can be accomplished even while providing higher signal levels – and thus providing useful over-the-air broadcast service – beyond the single-transmitter 41 dBμ contour. Further, the Commission should confirm that

⁵⁸ NPRM ¶ 46.

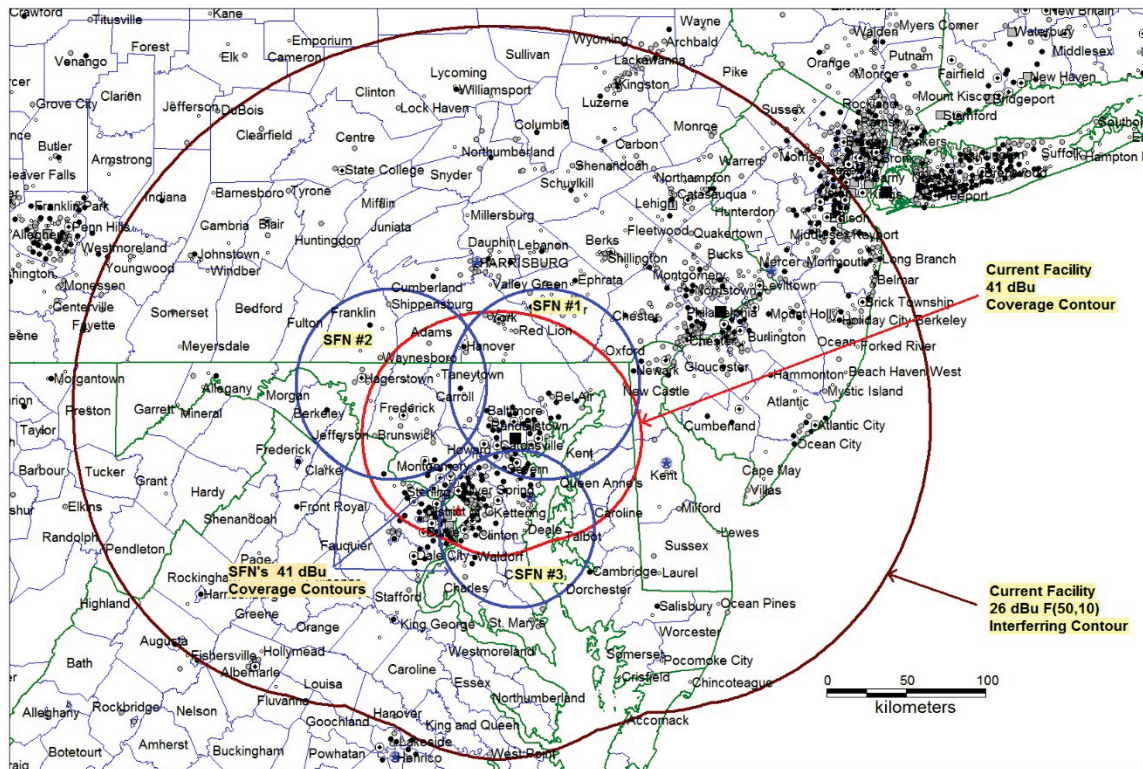
broadcasters may further extend and enhance service by entering into voluntary interference agreements with co-channel and adjacent channel stations. These steps will allow broadcasters to improve service reception within DMA and regionally.

The Commission should afford stations this flexibility to provide useable service within the predicted coverage contour. Indeed, there is no reason to prohibit a station from using a SFN to provide useful service to the greatest geographic area possible so long as emissions at or above the 26 dB μ contour are contained within the station's single-transmitter 26 dB μ contour. The large geographic areas between a station's 41 dB μ and 26 dB μ contours today are no more than exclusion zones – necessary but unusable by-products of today's single-transmitter 8-VSB architecture. But with ATSC 3.0 SFNs, robust, reliable service can be provided to many parts of these erstwhile “no-man's land” zones without extending the station's interference footprint beyond the single-transmitter 26 dB μ contour. The Commission should permit and encourage these service improvements.⁵⁹

To illustrate this proposal, Figure 1, below, represents a Baltimore, Maryland licensed signal. The full-power station's theoretical coverage contour based on OET 69 factors is represented by the 41 dB μ red circle. The station is protected from interference up to its larger 26 dB μ contour represented by the brown line. In order to maximize service, a station could construct multiple small tower SFN transmitters to provide signals within the 41 dB μ contour and beyond, so long as signal levels at or above 26 dB μ are contained within the predicted 26 dB μ contour of the station. Shrinking the gap between coverage and interference contours results in enhanced actual service area for consumers and far more efficient use of spectrum for the purpose for which it is allocated.

⁵⁹ In many cases, an area within a station's interference contour may also fall within another station's interference contour. In such cases each station should have equal rights to expand service, with each station entitled to negotiate protection from the other through coordination agreements.

Figure 1 – Extending Service Within Interference Contour



Four Station SFN (Current Facility plus 3 Smaller Facilities SFN's 1, 2 & 3)
Current Facility ERP = 290 kW Directional, HAAT 313 m
SFN's 1 and 2 ERP = 50 kW OMNI, HAAT 100 m SFN #3 ERP = 5 kW OMNI, HAAT 100 m

In no case will the changes we propose result in harmful interference to co-channel or adjacent channel stations. As noted above, even without an interference agreement, a co-channel station can expand service via an SFN without exceeding the 26 dB μ threshold at a co-channel station's 41 dB μ contour, even assuming minimum spacing. And because ATSC 3.0 permits variable coding rates, allowing stations to trade off throughput for coverage, co-channel ATSC 3.0 stations deploying coordinated SFNs can each improve and extend service, even if they provide higher-than-standard signal levels at the edges of their service areas.⁶⁰ Support for

⁶⁰ This flexibility is important not only to extend geographic reach, but also to permit more reliable service at the edge of a station's traditional service area. In deploying a SFN, it is impossible (or at least highly impractical) to improve performance at the edge of the currently defined 41 dB μ coverage contour without exceeding limits outside of that coverage contour, even though such an SFN can be deployed to reliably contain all emissions within the original 26 dB μ interference contour, thus satisfying the intent of the original rules.

SFNs, which permit stations to provide more uniform and reliable coverage, is one of the most compelling attributes of the Next Gen standard. Broadcasters using SFNs should be allowed to maximize service to consumers based on real world interference concerns and not be constrained by outdated theoretical coverage contours that may bear no relation to actual capabilities of stations.

c. **DTS Rules.** The NPRM proposes to apply the 2008 DTS rules to deployment of ATSC 3.0 SFNs, and asks for comment.⁶¹ The DTS rules provide a useful framework for SFN deployments, but they are inadequate to the task of permitting broadcasters the flexibility they need to address the complex demands of today's marketplace and the expectations of consumers. Obviously, the longstanding table of allocations and the interference and service rules are conditions that must be taken into account going forward. But they should not be embedded as permanent constraints as broadcasters begin the long process of designing and building SFNs to support ATSC 3.0 service.

The primary deficiency of the DTS rules is that they do not support maximization of service areas. At a bare minimum, the Commission should clarify that SFNs may be deployed as explained above, so long as signal levels remain at or below 26 dBμ at the single-transmitter 26 dBμ contour, or may exceed those levels pursuant to bilateral interference agreements. These steps would permit modest but important improvements in service. But SFNs can provide new and improved service to far more unserved and underserved areas, and the Commission should allow broadcasters to realize that potential in full. In the DTS proceeding, some commenters supported a "Comparable Area Approach," while others supported an "Expanded Area Approach." The Expanded Area Approach would have permitted a DTS station to expand its

⁶¹ NPRM ¶ 60.

service area beyond that permitted by a single-transmitter broadcaster under the rules.⁶² As explained below, the Commission rejected the Expanded Area Approach, electing to restrict a DTS station to provide service to a distance comparable to the hypothetically maximized service distance that could be reached by a single transmitter station.⁶³

To the extent the Commission applies the DTS rules to SFN deployments, it should not limit SFNs coverage to the Comparable Coverage Approach. Given the vastly higher expectations of consumers today, the benefits of expanding service greatly outweigh the four considerations that tilted the Commission in favor of the comparable area approach in 2008:

- First, the Commission reasoned that the comparable area approach “offers consistent treatment to both single-transmitter and DTS stations and best balances the primary coverage rights between stations choosing to employ DTS and those choosing not to.” The Commission also stated that “an Expanded Area Approach is not necessary to implement DTS service or obtain its core benefits.”⁶⁴

- Second, the Commission found that the Comparable Area Approach “best protects the principles of localism by restricting a station’s focus to its traditional coverage area.”⁶⁵

- Third, the Commission reasoned that “a Comparable Area Approach is more consistent with our TV channel allotment and licensing policies applicable to single-transmitter stations.”⁶⁶

⁶² See DTS Order at 16741 ¶ 16.

⁶³ *Id.* ¶ 17.

⁶⁴ *Id.* at 16742 ¶ 18.

⁶⁵ *Id.*

⁶⁶ *Id.*

- Fourth, the Commission observed that DTS was then a “promising technology” but noted that it was “new” and the Commission was reluctant to “dramatically redefine the broadcast television service” based on a new technology.⁶⁷

We do not believe these reasons or any others justify enormously limiting the potential for advanced, market-responsive service that ATSC 3.0 enables. We address each rationale in turn.

Consistent Treatment Single Transmitter Stations and SFN Stations. The government should not prohibit some broadcasters from expanding and enhancing their service offerings just because other broadcasters do not wish to do so. Naturally, all broadcasters are entitled to the level of protection from interference that they enjoy today, and all broadcasters should have equal rights to expand service should they desire. But no broadcaster is prejudiced by the decision of another broadcaster to expand coverage so long as the non-expanding broadcaster does not receive additional interference. The rationale in the DTS Order that expanded coverage is not “necessary” to realize the benefits of DTS does not apply to SFNs. *Some* of the benefits of SFNs can be realized if constrained to the table of distances adopted in the DTS order. But consumers are entitled to the best and most widely available broadcast service that technology and willing broadcasters can make available. It is not the Commission’s business to “protect” broadcasters who do not wish to expand from the superior service offered by those who do. The Commission’s task is to serve the interest of the public.

Localism. The DTS Order concluded that an Expanded Area Approach might “distract stations” from the important policy goal of improving service to their local communities.⁶⁸ This is both overly simplistic and wrong. The Commission must take a commonsense approach to

⁶⁷ *Id.* at 16742-43 ¶ 18.

⁶⁸ *Id.* At 16743-44 ¶ 20.

what localism means in the 21st century and particularly what it means in light of the capabilities of ATSC 3.0. The undeniable fact is that today each television station serves most, if not all, of communities of the DMA it serves. Most people today receive local stations by MVPD retransmission, and that retransmission is mapped very precisely to the DMA lines. For better or worse, DMAs do, in fact, define local television markets. And broadcasters make great efforts to serve the entire DMA even while maintaining appropriate service to their communities of license. We do not suggest, as did proponents of the DTS Expanded Area Approach, that every broadcaster be presumptively entitled to expand coverage to the entirety of its DMA. But substantial flexibility to improve coverage would bring enormous benefits.

Moreover, it is counterproductive to deny service to the underserved simply to perpetuate some antique notion that broadcast service is a zero sum game in which expanded service to the underserved comes at a cost to a station's community of license. This is particularly the case with a highly mobile population: the residents of a community are not always confined to its boundaries, or even to a station's F(50,90) propagation contours. If technology allows and broadcasters are willing to invest, consumers should be able to enjoy the service of their local stations throughout the areas in which they routinely travel (and use their media devices) day-to-day.

The Commission also rejected the Expanded Area Approach for DTS because doing so might have the effect of denying some communities the opportunity for a first local service. But this is merely an academic concern in 2017. The reality is that post-repacking there are likely to be far fewer opportunities for new television stations in communities that could feasibly support them. And, even prior to repacking, applications for new television stations to serve new areas were comparatively rare. It is a fact of the market today that over-the-air television faces intense competition on multiple fronts, and to the extent that stations serving (and serving with locally

produced content) smaller communities are viable, those stations have long since been licensed. Moreover, a critical input to a commercially successful television station today – a network affiliation – is essentially exhausted: with few exceptions all of the “big six” national broadcast networks have affiliates in all of the television markets. To the extent they do not, the absence reflects unavailable channels or insufficient economic support.

For all of these reasons, the Commission’s conception of “localism” today should take account of the facts of the marketplace, the mobility of viewers, and the capabilities of new technology. The Commission can best foster localism today by creating the easiest possible regulatory path to widespread ATSC 3.0 SFNs. One of the primary benefits of SFNs is the ability to geo-target content, including local news, emergency alerts, advertising, crawls, and other aspects of core television service. ATSC 3.0 and SFNs can vastly improve localism even while providing expanded service. It would be senseless for regulations to limit what is made available to consumers today based on what was available in the past.

TV allotment priorities for single-transmitter stations. This objection to expanded coverage area appears to be simply another way of saying that SFNs can serve larger areas than single-transmitter stations. That, though, is an advantage to be sought, not repressed. Unless the Commission has a hard bias against expanded and optimized service – something that seems to be unlikely – the only question is whether the Commission’s existing procedures for choosing between competing proposals for new or expanded service are adequate to the task of adjudicating between single-transmitter stations and expanded SFN service. And they are. For example, a broadcaster seeking significantly to expand service via a SFN in a manner that would exceed its single-transmitter service interference contour could file an application that could be treated as a major change. That application would be put on public notice inviting competing proposals. At the close of the filing window, the FCC would create a processing pool of all

mutually exclusive applications and permit the parties an opportunity to coordinate. Failing coordination, the Commission could conduct an auction. There would be no material change from the existing allotment and licensing rules.⁶⁹

Broadcast rule revisions based on “new” technology. The final rational against service expansion cited in the DTS Order essentially held that DTS technology was too “new.” As explained above, allowing SFNs to provide expanded service does not in fact require a “dramatic” revision to the broadcast rules. To the minor extent changes are needed, the public interest in facilitating delivery of new and innovative services to all Americans overwhelmingly outweighs the modest changes required.

We observe that the Commission’s rejection of the Expanded Area Approach in the DTS order seemed to be based in part on the fact that some commenters had asked the Commission to allow a DTS station to expand to the entirety of its DMA. Although we believe that such blanket approval would be a reasonable approach to facilitating prompt expansion of service, we urge the Commission not to reject all expansion based on reasoning of a decade ago that considered a very different technology in a very different market environment.

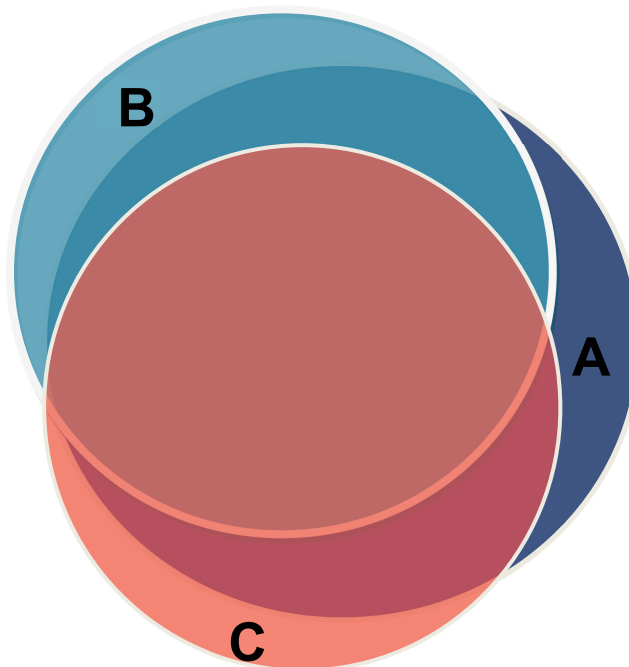
d. Largest Station Alternative. If the Commission restricts expansion via SFNs to the Comparable Area Approach used for DTS, we ask the Commission to make one important conforming change. The DTS rules permit a DTS station to use the “largest station” alternative⁷⁰ rather than the DTS Table of Distances. The “largest station” rule already

⁶⁹ In other services that use spectrum that is ideal for mobile services, the Commission’s overriding policy has been to ensure prompt deployment of innovative new services to the public and to discourage warehousing of spectrum. Yet, in the broadcast service, the longstanding policy actually inhibits broadcasters from expanding service. The Commission need not re-write its allotment and licensing rules to align its broadcast policy with that applicable to other services. It need only permit broadcasters to expand to serve unserved areas. The market will then ensure that the greatest amount of service that is economically viable is actually made available.

⁷⁰ See 47 C.F.R. 73.622(f)(5). Section 73.622(f)(5) provides that licensees assigned a DTV channel in the initial DTV Table of Allotments may request an increase in either effective radiated power (“ERP”) in some direction or antenna height above average terrain (“antenna HAAT”) that exceeds the initial technical facilities authorized for

permits stations to exceed the ERP and antenna HAAT limits in order to provide the same geographic coverage area as the largest station within their market. The Commission should modify this rule to permit every station that operates via a shared SFN to expand to cover both the area served by the largest station in the market and all areas that are (or theoretically could be) covered by all stations that are participating in the shared SFN.

Figure 2 – Illustrative Three-Station Single Tower Coverage



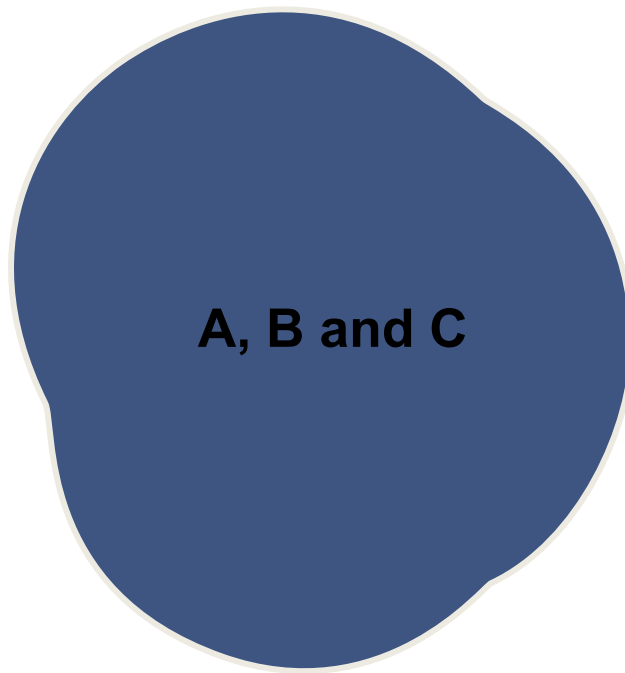
For SFNs to be economically feasible, several stations in each market will have to co-locate on the same SFN towers and share the costs. This means that all stations participating in a joint SFN project in a market will have substantially identical coverage areas.⁷¹ The question, then, becomes what geographic area the SFN – and thus all participating stations – will cover.

the allotment. 47 C.F.R. § 73.622(f)(5). Such increases are limited to maximum powers specified in paragraphs (f)(6) through (f)(8) of that section. Id. § 73.622(f)(6)-(8). Where specified antenna HAAT values are exceeded, the maximum ERP generally is reduced in accordance with the appropriate chart or formula in those paragraphs. Paragraph (f)(5) also allows the maximum ERP and HAAT combination to be “up to that needed to provide the same geographic coverage area as the largest station within their market, whichever would allow the largest service area.” Id. § 73.622(f)(5). Such requests must include an engineering showing that the increase would not result in new interference.

⁷¹ Some differences in coverage could be effected with changes in power and/or pattern for certain stations, but in general, all stations sharing an SFN would have very similar coverage areas.

Figure 2 below depicts a hypothetical three-station market in which the largest station (A) covers most but not all of the areas covered by other stations (B and C). Each of the stations operates from a different transmitter site and therefore has a unique coverage area. Under the “largest station” application of the existing DTS rules, stations B and C could expand to cover all of Station A’s contour. But since no other service expansions for any of the participating stations are authorized under the DTS rules, a shared SFN in this scenario would leave the areas *not* covered by the largest station uncovered by any station.⁷² In other words, while viewers who could receive only Station A before the SFN was built would gain new service from Stations B and C, viewers who previously could receive Station B and/or Station C, but who could not receive Station A, would lose service from those stations.

Figure 3 – Illustrative Three-Station SFN with Full Coverage



⁷² Station B would not be permitted to expand to cover the portion of Station C’s coverage area that it did not already cover, and vice versa. Station A would not be able to expand into the non-overlapping coverage areas of either Station B or Station C, since it is the largest station and does not benefit from the largest station rule.

In contrast, a joint SFN project in which each participating station is permitted to serve the non-overlapping areas served by other participating stations would provide uniform coverage of all three stations throughout the market.⁷³ Some viewers would gain service from one or two stations, but no viewers would lose service as a result of the SFN deployment. As depicted in Figure 3, the resulting coverage area of each individual station would be the combined single-transmitter coverage areas of all three stations.⁷⁴

To prevent a loss of service to any viewer from the introduction of SFNs, we propose that the Commission modify the “largest station” rule – § 73.622(f)(5) – to provide that each station participating in a mutual SFN may exceed the maximum signal levels implied by the height and power limits of § 73.622 up to that needed to serve the pre-SFN service areas of all stations participating in the SFN plus that of the largest station, whether or not the largest station participate, so long as doing so would not cause harmful interference to any other co-channel or adjacent channel station.

SFNs will provide enormous service improvements, but they come at a cost: SFNs will be more expensive to build and operate than single-transmitter facilities. As a practical matter, we expect that many, and ideally most or all, stations in each market will participate in the construction and ongoing operation of a shared SFN. The SFN will have to be designed to meet the requirements of all participating stations. Without flexibility for each station to at least modestly expand its coverage area, the number of markets in which SFNs are feasible may be relatively small. In all cases, a broadcaster expanding service via SFN would be require to limit

⁷³ Obviously, hard constraints on caused interference must be addressed, but the Commission should acknowledge the difficult tradeoffs that must be made in these circumstances and give participating stations as much flexibility as possible.

⁷⁴ In many cases, practical constraints, such as terrain, available locations for suitable towers, and interference to co-channel stations may prevent SFNs from taking full advantage of the flexibility we propose. But the Commission should permit this flexibility to those designing complex multi-station SFNs.

emissions towards any other existing or authorized facility to the levels permitted by the existing rules.⁷⁵

Many broadcasters will have to work together to make SFNs economically viable. By extension, many if not most broadcasters with facilities in adjacent markets will already be at the table when an SFN is planned for any given market. The Commission should give the parties the most flexibility possible, consistent with fairness and due process, to make the many complex tradeoffs necessary. With participation of all affected parties and with some possible capacity reductions, a single SFN location might even support co-channel broadcasters in two different markets.

e. **ATSC 3.0 Interference.** Regarding received interference from ATSC 3.0, the Commission asks whether DTV operations would be sufficiently protected by the OET Bulletin No. 69 methodology and planning factors.⁷⁶ As explained above, the Commission's requirements for television broadcast service are based on traditional protection of service, from one signal, radiating from one high power transmitter. OET 69 specifies that broadcasters should be protected from single-signal interference within the area in which their signal achieves a predicted signal level of 41 dBμ. We believe that as long as a station's SFN emissions are contained within the single-transmitter 26 dBμ contour as predicted by OET 69, then OET 69's methodology and planning factors will fully protect other stations from receiving interference. However, for the reasons explained, the Commission should not rigidly adhere to OET 69 predictions when all affected stations have agreed to a non-complying solution that enhances service.

⁷⁵ To the extent the Commission does not authorize broadcasters to expand their coverage areas, we ask the Commission at least to permit stations to improve service when they can do so beyond their predicted 41 dBμ contours, but within their predicted 26 dBμ contours, as described above.

⁷⁶ NPRM ¶ 52.

The Commission tentatively concludes that it is appropriate to calculate interference from ATSC 3.0 signals to DTV in accordance with Sections 73.622, 73.623 and 74.703 of the Commission's rules and as implemented by OET Bulletin No. 69.⁷⁷ We agree, except that this should be limited only by the interference contour.

f. Preservation of Service. The Commission also seeks comment on how to determine objectively if a Next Gen TV programming stream is similar in quality to DTV.⁷⁸ It envisions this to be a benefit to broadcasters who elect to offer mobile streams while avoiding potential redundancies in their overall data stream, by not penalizing those stations that wish to deploy mobile service without requiring provision of two identical program streams for both mobile and household-reception in the same areas.

We note that advances in technology have precluded the need to provide two separate but otherwise identical programming streams for mobile and household reception. Through S-HEVC, it is possible to provide a single base level layer coded video stream to service the needs of fixed and mobile service and provide in the same RF envelope a second, enhancement stream that scales the base level encoded stream to higher spatial and temporal resolutions (*i.e.* SD to HDTV or HDTV to UHD TV). We therefore do not propose any changes to the one SDTV requirement.

The Commission notes that requiring one comparable free video stream will afford broadcasters the flexibility to devote remaining resources to enhanced services such as UHD without affecting their underlying coverage calculations, while ensuring that all viewers predicted to receive Next Gen TV signals will have at least one free video stream available to

⁷⁷ NPRM ¶ 45.

⁷⁸ *Id.* ¶ 47.

them.⁷⁹ It requests comment on what rules changes, if any, would be necessary to implement this proposal. Other than specifying that the free video stream needs to be provided at a comparable threshold of visibility to A/53 (that is the 15 dB C/N value) minimum, no changes are needed.

g. Next Gen TV Service Area. The Commission also requests comment on the use of a single service threshold to define this “DTV-equivalent” service area.⁸⁰ It asks whether the definition of a “DTV-equivalent” service area should specify both a minimum field strength and data rate or whether the specification of a minimum field strength is sufficient to ensure an acceptable data rate. As explained above, except for cases in which other Commission rules require reference to a service area (e.g., community of license coverage), the Commission should abandon efforts to define service areas and instead should provide broadcasters flexibility to deploy in whatever manner the market demands. Where reference to an effective service area is essential, the Commission should specify an objective field strength rather than a minimum bit rate. Given advances in coding and compression, a bit rate requirement adopted today might ultimately prove to be unnecessarily constraining.

Comment is sought on appropriate values for OET 69 planning factors for Next Gen TV.⁸¹ From our perspective, except as otherwise explained in these comments, those planning factors should remain unchanged.

h. Interference Protection. The Commission notes that Next Gen TV broadcasters who choose to offer higher capacity, i.e., less robust, programming within their “DTV-equivalent” coverage areas may not be protected from interference at this threshold. Next Gen TV broadcasters may also choose to offer lower capacity, i.e., more robust, programming

⁷⁹ *Id.*

⁸⁰ NPRM ¶ 48.

⁸¹ NPRM ¶ 50.

that permits signal to noise ratio thresholds below the DTV threshold.⁸² This could effectively expand their effective service area for those services beyond the current “DTV-equivalent” service area or provide coverage to areas that were previously unserved due to terrain-limited propagation conditions within the contour. The Commission asks whether these areas should be given interference protection.

Consistent with our discussion above, we believe the Commission should abandon the approach of defining separate “service” and “interference” contours to the maximum extent possible given other regulations that apply to television broadcast service. Stations should be permitted and encouraged to offer service to the maximum extent possible, in response to market demand, so long as they do not expand their interference footprints vis-à-vis other existing or authorized primary licensees (predominantly, other television stations) and thereby cause new interference. In other words, no station should be required to accept interference – defined as a field strength received within its single-transmitter predicted 41 dBμ contour – from another station than it would have received from the theoretical maximum single-transmitter facilities of that same station.

The Commission asks whether alternative threshold protection approaches could be better suited to ATSC 3.0.⁸³ We note, however, that this question points out that the limitations of the existing table of allotments approach under OET 69 in an environment in which broadcasters have the ability to change coding rates within the same RF envelope and thereby expand (and contract) service contours. Broadcasters should have the flexibility to change their service area within the RF envelope dynamically, but also should be able to expand their RF service if doing

⁸² NPRM ¶ 51.

⁸³ *Id.*

so does not cause actual service interference to other stations (or in which it is negotiated pursuant to interference agreements/coordination).

E. ATSC 3.0 Transmissions as “Television Broadcasting”

1. Definition of Television Broadcasting

The Commission tentatively concludes that Next Gen TV stations are “television stations” engaged in “broadcasting” as those terms are defined by the Act and seeks comment.⁸⁴ We agree that ATSC 3.0 is broadcasting, just as 1.0 is broadcasting. The Commission in this proceeding only proposes a change in the technical standard used to modulate transmissions. No changes to other broadcast service rules are sought. There is no basis for the Commission to determine that ATSC 3.0 transmissions are not “broadcasting.”

2. Public Interest Obligations

The NPRM asks whether there any public interest or programming rules (*e.g.* foreign ownership, political broadcasting, children’s programming, equal employment opportunities, public inspection file, main studio, indecency, sponsorship identification, contest rules, CALM Act, the Emergency Alert System, closed captioning, and video description) that should not apply to ATSC 3.0 broadcasts.⁸⁵ We believe that broadcasting in general is greatly over-regulated, and many of the rules that apply to television broadcasting today are candidates for elimination. However, we do not believe there is any reason that a decision to permit use of a different technical standard should, in and of itself, invite review of those rules. All stations should benefit from any deregulation, not just those that have transitioned to 3.0 broadcasts. This proceeding is not the forum to debate issues that have no bearing on the choice of technical transmission standard.

⁸⁴ NPRM ¶ 65.

⁸⁵ NPRM ¶ 67.

The NPRM also asks whether any rule changes, including those related to public interest obligations and political programming, should be considered in light of the asserted benefits of ATSC 3.0.⁸⁶ In light of the voluntary nature of the deployment of 3.0, it is premature at this time to consider imposing additional public interest obligations on stations converting to this new technology. The Commission should and must encourage introduction of innovative new technologies and services to consumers. Imposing additional obligations on broadcasters would discourage innovation that the Commission should be incentivizing.

The NPRM asks which features of ATSC 3.0-based services will be provided over-the-air to consumers for free and what additional services or features will require a fee, and which features will be available only to those with an Internet connection.⁸⁷ Because this is an optional voluntary technical upgrade to broadcasting capabilities, broadcasters will have flexible options on what services to offer, many of which have not been imagined yet and may not be deployed at all. This is not an appropriate proceeding to impose regulatory definitions on services that do not yet exist. The Commission has already established that broadcasters may use a portion of their allotted channel for ancillary and supplementary services, but pointedly did not define what those services are or could be because of the impact on innovation.

Further, because broadcasters are not allocated or assigned spectrum for a return channel (and are in fact limited to a single channel for downstream/forward channel/broadcasting), the service provided is not interactive. Any service requiring a return channel would necessitate access to the Internet. It is beyond the scope of this rulemaking to predict and impose new regulatory requirements on services that are yet to be imagined or deployed.

⁸⁶ NPRM ¶¶ 68-69.

⁸⁷ NPRM ¶ 70.

The Commission asks commenters to elaborate on which such services or features will be “ancillary services” within the meaning of the rules.⁸⁸ Naturally, no content or related data services provided via the broadband/IP integration capabilities of ATSC 3.0 are subject to FCC regulation. Any content or features delivered or enabled via the consumer’s Internet connection is not regulated under the Commission’s broadcasting rules. Only content, features or services transmitted within the ATSC 3.0 broadcast signal would be subject to the ancillary and supplementary definition as established in the current rules. Certainly, no programming or related data services would meet that definition in an ATSC 1.0 or 3.0 world. No changes are to those rules are sought or needed.

The NPRM also asks whether, if the majority of an ATSC 3.0 station’s spectrum/bandwidth is devoted to paid services, those services are “ancillary” under the Commission’s rules.⁸⁹ “Ancillary” services, as defined in the Commission’s rules are those services distributed digitally other than free, over-the-air program content.⁹⁰ The definition of “ancillary” is not a function of the percentage of a broadcaster’s data capacity that is used to transmit services offered for a fee. It would be an impossible task to determine what constitutes the “majority” of a broadcaster’s bandwidth without reference to various factors such as specific or aggregated time periods and the degree of coding applied to different services.

There are at least two basic problems with placing arbitrary lines as to the balance of broadcast versus “ancillary” services. First, it is impossible to “count” bits in a consistent way from station to station, service to service, and time period to time period. Second, doing so would constrain innovation and incentivize broadcasters to tailor their services to the FCC’s regulatory oversight rather than those that the market demands and that best serve the public.

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ 47 C.F.R. § 73.624(c).

The NPRM seeks comment on the potential regulatory significance of an ATSC 3.0-based service that is provided for free versus one that is not.⁹¹ Free-to-air broadcast television streams should be regulated as they are today.⁹² This is proposed as – and the Commission should treat it as – a proceeding to consider whether broadcasters should be permitted, voluntarily, to upgrade their facilities to provide vastly improved broadcast service. The definition and applicability of ancillary and supplementary definitions should not depend on the broadcast standard chosen by the broadcaster, regardless of the services and capabilities inherent in the standard.

We note that the fee structure imposed on ancillary and supplementary services mandated by Congress was in part established to “prevent unjust enrichment.”⁹³ The rate set by the Commission was purportedly designed not to dissuade broadcasters from using their DTV capacity to provide new and innovative services that can greatly benefit consumers.⁹⁴ That rate was set without benefit of any real-world experience and was not a function of any cogent economic analysis. Since broadcasters voluntarily deploying the Next Gen standard will assume all costs associated with the deployment and will assume all business risks in providing these innovative services, the rationale for a significant payment to the government associated with gross revenues of ancillary services requires reassessment. The Commission should take this opportunity to reduce this requirement substantially and ensure that it truly does not dissuade innovation. Indeed, the Commission noted in adopting the fee that, once digital television licensees have implemented ancillary or supplementary services, the Commission and the

⁹¹ NPRM ¶ 70.

⁹² Although many of the FCC’s rules regarding free over-the-air broadcasts are outdated and counterproductive, this proceeding is not an appropriate vehicle to consider changes to other rules.

⁹³ See 47 U.S.C. § 336(e)(2)(a).

⁹⁴ See *Fees for Ancillary or Supplementary Use of Digital Television Spectrum Pursuant to Section 336(e)(1) of the Telecommunications Act of 1996*, Report and Order, 14 FCC Rcd 3259 at ¶ 17 (1998).

licensees will have a better concept of what these services might include and of the profit-making capacity of these services and report its findings to Congress as required. This is an appropriate time for that reassessment.

F. Transition and Consumer Issues

1. Next Gen TV Tuner Mandate

The NPRM asks whether the Commission should require that television receivers manufactured after a certain date include (1) an ATSC 3.0 tuner and if so, when such a mandate should take effect,⁹⁵ or (2) an HDMI port to permit attachment of an external tuner dongle or other equipment (*e.g.*, a set-top box or gateway device) that can receive signals from an OTA antenna and will allow the receiver to be easily upgraded to view ATSC 3.0 services.⁹⁶

The capabilities enabled by ATSC 3.0 are such that the marketplace will demand inclusion of those capabilities in receive devices.⁹⁷ We note, however, that Commission support for inclusion of ATSC 3.0 tuners in the devices consumers use to watch television today would greatly facilitate and expedite the introduction and use of innovative new services. At a minimum, the Commission should provide that any device that includes an ATSC 3.0 tuner would meet the All Channel Receiver mandate. Therefore, the rule should be amended to provide that any device that includes an ATSC 3.0 tuner and receives all channels in the post-auction television band would meet the All Channel Receiver mandate as reflected in rules. The proposed changes to 15.117 in Appendix A to the NPRM should be modified to provide as follows:

17.117 TV broadcast receivers

⁹⁵ *Id.* ¶ 71.

⁹⁶ *Id.* ¶ 73.

⁹⁷ Although this is a voluntary, optional deployment and it may be premature for the Commission to consider changes to the television tuner mandate adopted pursuant to the All Channel Receiver Act, to the extent that there is a marketplace failure or critical need to facilitate emergency warnings/information, the Commission can revisit the need to require 3.0 reception capacity in all receive devices.

(b) TV broadcast receivers shall be capable of adequately receiving all channels allocated by the Commission to the television broadcast service that broadcast digital signals broadcast using the ATSC 1.0 standard or ATSC 3.0 standard; provided that a receiver that is cable of receiving all channels broadcast in the ATSC 3.0 standard is not required to receive channels broadcast in the ATSC 1.0 standard.

Inclusion of an HDMI port in TV receivers is not a substitute for actual OTA receiving capability. Moreover, most devices in which an HDMI port is useful already include one or more such ports.

2. On-Air Notice to Consumers About Transition to ATSC 3.0

The NPRM asks whether broadcasters should be required to provide on-air notifications to educate consumers about their transition to Next Gen TV service.⁹⁸ No regulations are needed. Broadcasters that undertake the substantial effort to transition to ATSC 3.0 have every incentive to alert consumers to its availability and features, as well as to inform them how to continue to receive ATSC 1.0 signals during the time of simulcasting. Rollout of ATSC 3.0 will be done on an *ad hoc*, market-by-market basis, and the rollout will inevitably involve multiple stages as more and more stations convert. No single FCC-mandated consumer education plan can anticipate the many variables that will exist in different markets.

The Commission asks whether its existing call center should provide consumer assistance over the phone on matters such as “rescanning” or to help resolve other reception issues, and whether the Commission should prepare maps that would be available online to inform consumers about what stations and signals are affected by the transition.⁹⁹ The Commission can provide a very useful service in assisting consumers who will need to re-scan their televisions. It is appropriate for broadcasters to notify the Commission at the same time they notify MVPDs that an impending change will occur so that the FCC’s call center will be able to provide timely

⁹⁸ *Id.* ¶ 74.

⁹⁹ *Id.* ¶ 76.

information to consumers, and so the Commission can develop maps to assist consumers. The Commission should also update its website to explain the benefits of ATSC 3.0 and outline the process of re-scanning.

3. Interplay with Post-Incentive Auction Transition / Repack

Given that broadcasters will bring ATSC 3.0 service to market during the post-incentive auction repacking period, the NPRM asks whether the repacking of stations presents an opportunity for those stations that want to upgrade to ATSC 3.0. The Commission also asks what steps it should take to facilitate ATSC 3.0 deployment consistent with the repack and ensure consumers retain the television service they expect while more quickly enjoying the benefits of Next-Generation Television, and how the Commission can ensure that the deployment of ATSC 3.0 does not negatively affect the post-incentive auction transition process.¹⁰⁰

The Commission and broadcasters must (and we believe they do) recognize that some efficiencies can be achieved with modest efforts to coordinate of repacking with ATSC 3.0 deployment. Both repacking and ATSC 3.0 deployment will proceed, more or less, on a market-by-market basis, requiring same-market broadcasters to coordinate on a wide range of technical and logistical matters. There are steps the Commission could take that would facilitate accelerated ATSC 3.0 deployment in the repacking process. To that end, it can and should promptly – ideally by the time that construction permit applications are due this summer - approve voluntary use of A/321 so that affected broadcasters in each market can incorporate that flexibility into their equipment purchase planning. Flexibility in approving modification requests to repacking phases, where possible, will enable market-wide deployment activities on an accelerated and efficient basis.

¹⁰⁰ *Id.* ¶¶ 77-78.

III. CONCLUSION AND REQUEST FOR EXPEDITED ACTION

The benefits of Next Generation television are ready to be made available to consumers *now*. Equipment manufacturers are in the process of developing chip sets for inclusion in both transmit and receive devices. Broadcasters, the consumer electronics industry, and broadcast equipment manufacturers are primed to move forward to offer compelling public interest benefits. Building on Internet Protocol, Next Generation Television will permit ubiquitous content delivery (fixed and mobile reception) while also permitting separation of content, caching, aggregation and distribution. The Single Frequency Network capabilities inherent in the new standard will facilitate hyper-localized programming and – significantly – supplement the television translator system that likely will be depleted as a result of the Spectrum Auction repack. Next Generation Television offers groundbreaking features to enhance the viewing experience, while also offering public safety enhancements, new programming opportunities, and new competitive choices for those seeking data distribution alternatives.

The Petition reflected a relatively simple request: permit voluntary/optional and simultaneous use of two transmission standards. That is not a particularly heavy lift for the Commission. The public interest elements cited by the Commission in the NPRM support moving forward with this proceeding quickly. It is manifestly in the public interest for the Commission to allow broadcasters to deploy ATSC 3.0 facilities at the time of channel repacking subsequent to the Incentive Auction. The FCC should expedite this proceeding to better facilitate the earliest possible availability of ATSC 3.0 equipment and the launch of Next Generation broadcast television service to the public.

Respectfully submitted,

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